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PART II

HM-145B

DEPARTMENT OF TRANSPORTATION

Materials Transportation Bureau

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TRANSPORTATION OF HAZARDOUS SUBSTANCES

[4910-60-M]

DEPARTMENT OF TRANSPORTATION

Materials Transportation Bureau

[49 CFR Parts 171, 172, 173, 174, 175, 176, 177]

[Docket No. HM-145B; Notice No. 79-2]

Transportation of Hazardous Substances

AGENCY: Materials Transportation Bureau, Research and Special Programs Administration, Department of Transportation.

ACTION: Notice of proposed rulemaking.

SUMMARY: This notice proposes to amend the Hazardous Materials Regulations to specifically address the transportation of hazardous substances that may threaten public health and safety or property when discharged in certain quantities. This proposal, which is a product of a joint Department of Transportation-Environmental Protection Agency (DOT-EPA) effort, is necessary to recognize some of the harmful characteristics of such materials which resulted in their designation as hazardous substances by EPA. The proposed regulations would apply only to materials listed now or later in the Hazardous Materials Table and identified therein as hazardous substances. This proposal applies to such materials in both interstate and intrastate transportation. Finally, this notice schedules public hearings on the proposals contained herein.

DATES: *Comment:* Comments must be received on or before April 23, 1979.

Hearings: Public Hearings are to be held on February 27, 1979; 9:00 a.m.-5:00 p.m. in Washington, D.C., and on March 14, 1979; 9:00 a.m.-5:00 p.m.; in San Francisco, California.

These will be informal rather than evidentiary type hearings and there will be no cross examination of persons presenting statements. Oral comments will be limited to seven minutes unless additional time is available before the close of the hearing.

ADDRESSES: *Comments:* Comments should be addressed to Dockets Branch, Materials Transportation Bureau, Washington, D.C. 20590 (telephone: 202-472-2726). It is requested that five copies be submitted.

Hearing: Any person wishing to present an oral statement should notify the Dockets Branch at the above address at least five days prior to the hearing. Each request should identify the speaker and the length of presentation, not to exceed seven (7) minutes.

Hearings will be held at the following locations:

February 27, 1979: Room 3201 Trans Point Building, 2100 Second Street, S.W., Washington, D.C.

March 14, 1979: Garden Room, Fleet Admiral Nimitz Officers Club, Building 140, Treasure Island, San Francisco, California.

(AC Transit bus "T" from East Bay Terminal, Oakland or Alameda). Parking spaces will be available.

FOR FURTHER INFORMATION CONTACT:

L. Metcalfe, Standards Division, Office of Hazardous Materials Regulation, Materials Transportation Bureau, DOT, Washington, D.C. 20590, 202-426-0656.

SUPPLEMENTARY INFORMATION: When Congress enacted the Federal Water Pollution Control Act (33 U.S.C. 1251 *et seq.*) (FWPCA) it declared in subsection 311(b)(1) of the FWPCA that it is the policy of the United States that there should be no discharges of oil or hazardous substances into or upon the navigable waters of the United States, adjoining shorelines or into or upon the waters of the contiguous zone. Section 311(b)(2) requires the Administrator of the EPA to designate as hazardous substances such elements and compounds which, when so discharged, "present an imminent and substantial danger to the public health or welfare including, but not limited to, fish, shellfish, wildlife, shorelines and beaches." Section 311(b)(5) of the FWPCA requires that any person in charge of a vessel or an onshore or offshore facility is to report discharges of certain quantities of these hazardous substances. Failure of a person in charge to make such report as soon as he has knowledge of such discharge subjects him to criminal penalties. Section 311 of the FWPCA also has numerous provisions concerning civil liability of owners and operators for the discharge, cleanup and removal of oil and hazardous substances.

Section 311(1) of the FWPCA authorizes the President to delegate administration of Section 311 of the FWPCA to appropriate heads of Federal departments and agencies. It also directs each such department and agency to use, whenever appropriate, the services of other departments and agencies, so as to avoid duplication of effort. By Executive Order 11735 of August 7, 1973, the President assigned some duties under Section 311 of the FWPCA to EPA, some others to DOT, and still others to both.

The Clean Water Act of 1977 (Pub. L. 95-217) enacted December 27, 1977, amended Section 311 of the FWPCA in many details. Among other things, it increased the maximum liability for removal and mitigation costs. The Clean Water Act did not change reporting requirements or penalties for failure to report other than to extend the applicability to the Outer Continental Shelf in the case of persons otherwise subject to the jurisdiction of the United States.

On March 13, 1978, EPA published in the FEDERAL REGISTER (43 FR 10474) a set of regulations, including 40 CFR Part 116, which designated 271 substances as hazardous in accordance with Section 311 of the FWPCA. On the same day, EPA proposed an additional 28 compounds to be so designated. It is expected that before the rules proposed herein become effective, all of the 28 proposed compounds will have been added to the list of 271.

The March 13, 1978, FEDERAL REGISTER also contained 40 CFR Parts 117-119, in which EPA classified hazardous substances in various respects, i.e., removability, reportable quantities and potential penalties. These regulations have never become effective because of delayed effective dates, court orders, and finally the passage of Pub. L. 95-567 in November of 1978. That law voided some of the provisions on which the proposed regulations were based. Accordingly, 40 CFR Parts 117-119 are being withdrawn. EPA, however, proposes to retain regulations to be renumbered 40 CFR Part 117, which spell out the minimum quantity of designated hazardous substance which, if discharged, must be reported.

IMPACT OF EPA'S RULES ON THE TRANSPORTATION INDUSTRY

According to Section 311 of the FWPCA, it is the person in charge of a vessel or an onshore or offshore facility who must report immediately the discharges of designated hazardous substances in quantities which may be harmful. Section 311(a)(10) of the FWPCA defines an onshore facility to include, but not be limited to, motor vehicles and rolling stock.

In practice, it is expected that, for example, the manufacturer of a chemical substance will have no difficulty identifying the substance or that the substance has been designated by EPA to be hazardous. But the master of a vessel carrying a hazardous substance, even though the loading plan may show what is being carried, may not be familiar with the EPA designations. Also, as has been pointed out by representatives of the railroad and trucking industries, a common carrier may be required to carry a mixture identified under a commercial trademark or a chemical product not sufficiently descriptive to permit even a expert to determine the chemical identity of the cargo. The transportation industry has expressed concern that a person in charge of a truck or a train may be subject to criminal penalties

for failing to report a discharge in spite of the absence of positive information identifying the cargo as falling under the EPA regulations.

DOT-EPA COORDINATION

Coordination of DOT and EPA activities to minimize or abate environmental pollution by the transportation industry is not new. The FWPCA itself assigns some duties to the Administrator of EPA, others to the Secretary of the department in which the Coast Guard is operating, i.e. DOT. Executive Order 11735 similarly divides responsibilities between these two agencies. However, to simplify reporting of a hazardous substance discharge, the Coast Guard's National Response Center has been designated as the single reporting point to which discharges of hazardous substances are to be reported. This response center then will alert the proper office, Coast Guard or EPA, to respond to the particular events.

ADVANCE NOTICE OF PROPOSED RULEMAKING—HM-145

On December 9, 1978, DOT published HM-145 as an advance notice of proposed rulemaking (41 FR 53824) covering the subject of this proposal. All comments received concerning this advance notice have been given full consideration in relation to the rules proposed herein. A number of commenters expressed concern over jurisdictional matters such as EPA's apparent infringement on DOT's authority and the question of overlapping jurisdiction. Also, several commenters indicated that DOT should not attempt to develop criteria for such materials and that the regulations should not be applicable to materials in quantities of less than 110 gallons per package.

Under the rules proposed herein, the transportation of substances designated as hazardous pursuant to the FWPCA would not be subject to a completely new set of regulations but an existing body of transportation regulations would be extended using DOT's authority under the Hazardous Materials Transportation Act (HMTA) (49 U.S.C. 1801 *et. seq.*). In the handling of discharge incidents, EPA or DOT is required by Section 311 of the FWPCA to respond. This is still true whether or not any transportation regulations are adopted under this rulemaking. Concerning alleged jurisdictional infringement, it should be understood that EPA and DOT are each attempting to accomplish their statutory responsibilities, and the Materials Transportation Bureau (MTB) believes that it is not a matter of infringement but rather the simple question of whether DOT or EPA should administer the regulations pertaining to the transportation of materials that are hazardous substances and which also may be considered to pose an unreasonable risk to health and safety or property.

Concerning the development of criteria, the MTB agrees with the commenters who suggested that DOT should not attempt to develop the criteria for materials that are subject to the FWPCA unless they fall within the realm of the existing defining criteria for materials presently designated as hazardous materials. The MTP believes the EPA has both the expertise and the technical resources necessary to deal with the determination and designation of those materials which should be considered for inclusion in the reporting requirement mandated by the FWPCA. Despite EPA's role in this proposal, it should be understood that the authority for the proposed requirements is the HMTA.

Concerning the suggested 110-gallon breakpoint, it has been determined by EPA that certain materials pose a significant risk at much smaller quantities, depending on the toxicity of the material under consideration. Therefore, the suggestion has not been adopted in this proposal.

RELATIONSHIP TO DOCKET HM-145A—HAZARDOUS WASTES

It is expected that many interested persons may be concerned about the relationship between this proposed rulemaking and the proposals made for hazardous wastes under Docket HM-145A on May 25, 1978 (43 FR 22626). In order to maintain a cooperative relationship with EPA and, recognizing the difficulties of timing the implementation of two major actions within that agency, the MTB's proposals for hazardous wastes and hazardous substances are being dealt with separately. However, it should be recognized that many of the proposed changes are common to both proposals and that, barring errors and omissions, there should be no overlaps or conflicts if both actions are completed as proposed. This is the case even if the implementation dates of final regulations are different.

PROPOSED APPLICABILITY OF REGULATIONS

It is proposed to make the regulations applicable to all hazardous substances, regardless of quantity, when they are listed by the EPA as subject to the FWPCA. Thus, any hazardous substance would be readily identifiable from shipping paper entries regardless of amount actually carried on a transport vehicle. This proposal also would require discharge reporting to be *based* not on actual amounts released, but on amounts loaded at one loading point, so that transporters would not have to keep a running total in multiple pickup and delivery operations, and would not have to estimate spill size to decide whether an immediate report is required. It is the view of the MTB that determinations of what constitutes a reportable discharge should be kept as simple as possible, consistent with the purposes of the HMTA, in order to encourage compliance and to facilitate effective enforcement. Therefore, the MTB is proposing that no immediate report of a release is required unless a reportable quantity is loaded at one location, e.g., a shipper's facility or freight terminal, and that fact noted on the shipping paper by quantites associated with the descriptions and by the notification statement. The accumlation of packages of a particular substance loaded in less than reportable quantities at more than one loading site would not be a reportable quantity under this proposal.

Also, in making the reportable quantity determination at one loading site, different substances would not be added together to make that determination. In order words, as long as a reportable quantity of a single hazardous substance is not loaded at one location, a carrier would not be required to report a release under proposed §171.17. However, in determining a reportable quantity, concentrations of a material are not required to be shown on a shipping paper and may not be considered in making that determination, i.e., ten pounds of a 50% mixture of a hazardous substance would be treated the same as ten pounds of the pure hazardous substance. Similarly, once the presence of a reportable quantity in transportation is signalled on the shipping paper(s), a discharge of *any* hazardous substance from that transport vehicle, aircraft, vessel or facility to the environment requires a report to the National Response Center on all hazardous substances in the transport vehicle, aircraft, vessel or in the area of the discharge if the discharge occurs in a facility and the source of the discharge cannot readily and safely be determined for the report.

This would preclude the necessity of a transport worker (e.g., truck driver or warehouseman) making a determination of the actual quantity discharged in deciding when a discharge report is required.

Although serious consideration was given to requiring different materials to be added on a proportional basis in determining a reportable quantity, the related computation, paperwork and difficulty of enforcement does not appear to be justified, especially since all the packages are unlikley to be simultaneously involved in a release. In-

stead, the MTB is proposing a simpler system which is equivalent in overall stringency. Comment is specifically solicited on whether the adding of different substances to determine unity is desirable in calculating a reportable quantity.

It is proposed to make the regulations in this proposed rulemaking applicable to transportation in both intrastate and interstate commerce consistent with the applicability of the FWPCA and DOT's authority under the HMTA.

REVIEW BY SECTIONS

SECTION 171.1. It is proposed to revise § 171.1 to specify the applicability of the proposed regulations to the motor vehicle transportation of hazardous substances by intrastate carrier. No such distinction is considered necessary relative to transportation by rail car, aircraft or vessels since such operations are subject to DOT's regulations without regard to the intrastate or interstate nature of individual shipments.

SECTION 171.8. Section 171.8 contains proposed definitions of "EPA," "hazardous substance," and "reportable quantity."

SECTION 171.17. Section 171.17 proposes a reporting requirement in addition to those presently specified in § 171.15 and 171.16, although compliance with proposed § 171.17 would satisfy the requirements of § 171.15(a) and (b). Notification to the National Response Center, U.S. Coast Guard would be required when any discharge of a *hazardous substance* occurs during transportation, if a reportable quantity is present as indicated by a shipping paper having the statement required by § 172.203(j)(2).

SECTION 172.101. Present §§ 172.100 and 172.101 would be combined into a revised and amended § 172.101 in order that the Hazardous Materials Table and the language introducing the Table would be contained in one section of the regulations. The introductory sentence to Paragraph (b) would be modified to include the letter "E" as an identifier in column 1 for material in column 2 that has been identified by the EPA as a hazardous substance and to subject those materials to transportation requirements by all modes. The letter "E" would be required to precede the proper shipping name on each shipping paper, package and name of the material in each portable tank, cargo tank or tank car for identification purposes during the transportation of any hazardous substance.

Paragraph (b)(1) would be revised to provide for changing the hazard class of certain materials from that specified in column 3 of the Hazardous materials Table. When a shipper determines that, because of a manufacturing process or other reason, a material is changed so that its basic hazard(s) is changed, a material would be reclassed and offered for transportation under the provisions of the new class. It is important to note that although a hazardous substance could be reclassed according to its hazard(s), if it did not meet the definition of any other hazard it would be reclassed as an ORM-E. If it were reclassed to any hazard class except ORM-E, it would be shipped under its proper shipping name within that class with the name of the hazardous substance entered in parentheses after the proper shipping name. However, if it were reclassed as an ORM-E, it would retain its original proper shipping name since there is no ORM-E, n.o.s. or hazardous substance, n.o.s. proposed.

Paragraphs (b)(2) and (3) would be modified to exclude from single mode applicability those materials which are identified by the letter "E" in column 1 and to subject those materials to transportation requirements regardless of the mode of transportation involved.

Paragraph (c)(8) would be added to explain the addition of the reportable quantity as an italicized entry in parentheses following the proper shipping name of hazardous substances in § 172.101. This would make the reportable quantity for each hazardous substance readily available for reference and for determination of when the notification statement on a shipping paper is required.

Hazardous Materials Table: The Hazardous Materials Table would be amended to include hazardous substances designated by the EPA under 40 CFR Part 117 and not presently subject to the regulations. Also, the Table would be amended to identify presently regulated hazardous materials that have been designated by the EPA as hazardous substances. These latter materials would be in two major categories. One would be materials that are now listed by name in § 172.101, and the other would be materials not now identified by name but which are now regulated under the n.o.s. listings in 172.101. Of the 165 materials being added by name, 45 are presently regulated under a n.o.s. listing, such as Beryllium fluoride which is regulated under the listing of Beryllium compound, n.o.s. The total number of materials that would be identified as hazardous substances under this proposal would be 359. These are listed and discussed in this preamble individually or in groups to identify the criteria for designating each as a hazardous material.

Although there appears to be a discrepancy between the number of newly identified materials in this proposal and the number of materials in the EPA list of hazardous substances, the materials in this proposal are those covered in the EPA list. The difference in the number of materials results from the necessity to identify in § 172.101 the different forms, mixtures or solutions of a material for proper regulation. For example, "Aldrin" appears once in the EPA list and six times in § 172.101

Hazard Class Determinations. The additions to § 172.101 to accommodate the hazardous substances would consist of 92 materials classed as ORM-E, 45 materials that are now regulated under n.o.s. listings which would be identified by name, and 28 that would be classed as ORM-A or ORM-B. Provisions are also made in § 172.101 to identify 194 materials currently being regulated by name that EPA has designated as hazardous substances.

Other Regulated Materials—ORM-A. Nineteen hazardous substances would be identified as ORM-A. This is based on the chemical, physical and other comparable properties of the compounds. The properties of these compounds are such that each compound can cause extreme annoyance or discomfort to passengers and crew in the event of leakage during transportation. These ORM-A materials are listed below:

Ammonium carbamate
Ammonium carbonate
Ammonium oxalate
Captan
Chlorpyrifos
2,4-Dichlorophenoxyacetic acid esters
Maleic acid
Maleic anhydride
Paraformaldehyde
TDE
Toxaphene
Trichlorfon
Trichlorophenol
2,4,5-Trichlorophenoxyacetic acid
2,4,5-Trichlorophenoxyacetic acid amines
2,4,5-Trichlorophenoxyacetic acid esters
2,4,5-Trichlorophenoxyacetic acid salts
2,4,5-Trichlorophenoxypropionic acid
2,4,5-Trichlorophenoxypropionic acid esters

Other Regulated Materials—ORM-B. Nine hazardous substances would be identified as ORM-B. This is based on the chemical, physical and other comparable properties of the compounds. The properties of these compounds are such that each compound is capable of causing significant damage to a transport vehicle, aircraft or vessel from leakage during transportation. These ORM-B materials are listed below:

Aluminum sulfate
Ammonium bisulfite, solid
Ammonium fluoborate
Ammonium silicofluoride
Calcium hydroxide
Ferrous chloride, solid
Lead fluoborate
Lead fluoride
Zirconium sulfate

Other Regulated Materials—ORM-E. Ninety-two materials would be classed as ORM-E. This is based on the EPA designation of certain materials as hazardous substances on March 13, 1978 (42 FR 10494), and the fact that according to our evaluation they do not meet the defining criteria of any other hazard class. These ORM-E materials are listed below:

Adipic acid
Ammonium acetate
Ammonium benzoate
Ammonium bicarbonate
Ammonium chloride
Ammonium chromate
Ammonium citrate
Ammonium sulfamate
Ammonium sulfite
Ammonium tartrate
Ammonium thiocyanate
Ammonium thiosulfate
Antimony trioxide
Benzoic acid
n-Butyl phthalate
Cadmium acetate
Cadmium bromide
Cadmium chloride
Calcium chromate
Calcium dodecylbenzenesulfonate
Chromic acetate
Chromic sulfate
Chromous chloride
Cobaltous bromide
Cobaltous formate
Cobaltous sulfamate
Cupric acetate
Cupric oxalate
Cupric sulfate
Cupric sulfate, ammoniated
Cupric tartrate
Dicamba
Dichlorbenil
Dichlone
Dinitrotoluene
Diquat
Diuron
Dodecylbenzenesulfonic acid
Ethylenediaminetetraacetic acid
Ferric ammonium citrate
Ferric ammonium oxalate
Ferric fluoride
Ferric sulfate
Ferrous ammonium sulfate
Ferrous sulfate
Fumaric aid
Isopropanolamine didecylbenzenesulfonate
Kelthane
Kepone
Lead acetate
Lead iodide
Lead stearate
Lead sulfide
Lead thiocyanate
Lithium chromate
Mercaptodimethur
Methoxychlor
Naled
Napthenic acid
Nickel ammonium sulfate
Nickel chloride
Nickel hydroxide
Nickel sulfate
Nitrophenol
Nitrotoluene
Nitrotoluene
Pentachlorophenol
Polychlorinated biphenyls
Potassium chromate
Propargite
Pyrethrins
Quinoline
Resorcinol
Sodium chromate
Sodium dodecylbenzenesulfonate
Sodium phosphate, dibasic
Sodium phosphate, tribasic
Strontium chromate
Triethanolamine dodecylbenzensulfonate
Vanadyl sulfate
Xylenol
Zinc acetate
Zinc ammonium chloride
Zinc borate
Zinc bromide
Zinc carbonate
Zinc chloride, solid
Zinc fluoride
Zinc formate
Zinc phenolsulfonate
Zinc silicofluoride
Zinc sulfate
Zirconium potassium flurcide

The 45 materials from various n.o.s. classes would be identified within the flammable liquid, combustible liquid, flammable solid, oxidizer, poison B, radioactive material, and corrosive material hazard classes as follows:

Flammable Liquids/Combustible Liquids. Three hazardous substances would be identified as flammable liquids and one as a combustible liquid. Closed cup flash points, except for epichlorohydrin, were obtained from the literature. Based on the open cup flash point of 105°F. reported for epichlorohydrin, the MTB estimates the closed cup flash point to be 95°F. These liquids and their respective closed cup flash point are listed below:

Material	Flash Point (°F.) CC.
Benzonitrile	167
Dichloropropene	95
Epichlorohydrin (estimated)	95
Ethylenediamine	93

Flammable Solids. Three hazardous substances would be identified as flammable solids. This is based on the chemical and physical properties of the compounds, and the fact that similar compounds (e.g., sodium phoshide) are classed as flammable solids. Sodium hydrosulfide, solid is listed as a "substance liable to spontaneous combustion" in the United Nations document entitled *Transport of Dangerous Goods.* These flammable solids are listed below:

Sodium hydrosulfide, solid
Zinc hydrosulfite
Zinc Phosphide

Oxidizers. Seven hazardous substances would be identified as oxidizers. Each compound is a nitrate and has been subject to the regulations under the proper shipping name "Nitrate, n.o.s." In addition, five of the nitrates are listed by name as oxidizing substances in the United Nations document entitled *Transport of Dangerous Goods.* These oxidizers are listed below:

Beryllium nitrate
Cupric nitrate
Ferric nitrate
Mercuric nitrate
Nickel nitrate
Zinc nitrate
Zirconium nitrate

Poison B. Seventeen hazardous substances would be identified as Poison B materials. Data on oral toxicity using rats (orl-rat LD50: mg/kg) was obtained from the National Institute for Occupational Safety and Health (NIOSH) *Registry of Toxic Effects of Chemical Substances* (1977 Edition) for 12 compounds. Data on toxicity by skin absorption using rabbits (skn-rbt LD50: mg/kg) was obtained from the NIOSH Registry for dichlorovos. Three compounds are currently subject to the Poison B regulations as "n.o.s." entries. Arsenic trisulfide is covered by the proper shipping name "Arsenical compound, n.o.s., solid". Beryllium chloride and beryllium fluoride are covered by the proper shipping name "Beryllium compound, n.o.s." No data is available for selenium oxide. However, based on chemical and pyhsical properties and the toxicity of other selenium compounds (e.g., sodium selenite), it is the MTB's opinion that selenium oxide meets the criteria for this hazard class. These poison B materials are listed below:

Material	Toxcity (orl-rat LD50: mg/kg)
Arsenic trisulfide	—
Beryllium chloride	—
Beryllium fluoride	—
Carbofuran	5
Coumaphos	16
Dichlorovos (skn-rbt)	107
Disulfoton	10
Endosulfon	18
Endrin	3
Ethion	13
Guthion	16
Heptachlor	40
Mevinphos	4
Mexacarbate	14
Selenium oxide	—
Sodium selenite	7
Vanadium pentoxide	10

Corrosive Material. Ten hazardous substances would be identified as corrosive materials. This is based on the chemical and physical properties of the compounds and the fact that several similar type compounds are classed as corrosive materials. These corrosive materials are listed below:

Ammonium bisulfite solution
Ammonium hydrogen fluoride, solid
Antimony tribromide, solid
Antimony tribromide solution
Antimony trifluoride, solid
Antimony trifluoride solution
Cresol
2,2-Dichloropropionic acid
Ferrous chloride solution
Hexachlorosyclopentadiene

Sodium bifluoride, solid
Sodium bifluoride solution
Sodium hydrosulfide solution

Radioactive Material. One hazardous substance, uranyl acetate, would be identified as a radioactive material. This compound has been subject to the regulations under one of several proper shipping names for n.o.s. entries for radioactive materials (e.g., Radioactive material, n.o.s.).

Section 172.200. Section 172.200(b) would be amended to remove the ORM exceptions as to the shipping paper requirements when a material being offered or transported is a hazardous substance.

Section 172.202. Section 172.202 would be amended to provide for identifying the quantity of a hazardous substance in pounds or kilograms on a shipping paper so a reportable quantity can be calculated.

Section 172.203. Section 172.203 would include a new paragraph (j) requiring the inclusion of the letter "E" within parentheses, brackets or a circle on the shipping paper immediately before the proper shipping name for each material identified in § 172.101 as a hazardous substance. Also a notification statement would be required to be placed on the shipping paper anytime a transport vehicle, aircraft, vessel, or freight container is loaded with a reportable quantity of any hazardous substance at any one loading site. transported by vessel.

Section 172.316. Section 172.316 would be amended to include ORM-E materials in the package marking requirements for ORMs.

Section 172.324 would be added and §§ 172.326, 172.328 and 172.330 would be revised to provide for including the letter "E" in a circle immediately before the proper shipping name on each package containing a material identified in § 172.101 as a hazardous substance.

Section 173.2. Section 173.2 would be amended to add ORM-E to the "order of hazards" listing for classification purposes.

Section 173.118a. Section 173.118a would be amended to exclude from the 110 gallons or less exception a combustible liquid when it is a hazardous substance identified in § 172.101.

Paragraph (b)(5) would be amended to reference the special reporting requirements in proposed § 171.17.

Section 173.500. Section 173.500 would be amended to clarify the definition of ORM materials. This clarification is essential to the implementation of the ORM-E class which is included in new paragraph (a)(5). Note that the ORM-E definition would include hazardous substances subject to 40 CFR Part 117 but is stated so that other materials may be included within this class at a future time.

Section 173.505. Section 173.505(a) would be revised for clarification of the exceptions for ORM-A, B, and C materials packaged in limited quantities since a basic function of the regulations is to exclude certain materials from specific packaging requirements when packages containing limited quantities of these ORMs are offered for transportation. This proposal more coherently restates this function.

Section 173.510. Section 173.510 would be amended to more clearly set forth the basic packaging requirements applicable to ORMs and a new subsection (b)(5) would be added requiring that transport vehicles used to transport ORM materials be free from leaks and have all openings securely closed. The proposed prohibition against use of open-top freight containers and transport vehicles for bulk shipments is significant. This prohibition would apply to the use of open or tarp-covered dump trucks for the transport of hazardous substances. Commenters opposed to such a prohibition are invited to submit suggestions concerning appropriate controls of tarp-covered vehicles that would assure compliance with § 173.24.

Section 173.1300. A new Subpart O would be added to Part 173 to address ORM-E materials generally and a new § 173.1300 would be added to address hazardous substances. No specific packaging requirements are being proposed in this rulemaking for such materials other than a reference to the basic requirements for ORMs in § 173.510. For example, if a hazardous substance is to be offered for transportation by aircraft, the requirement of § 173.6 in Subpart A would apply since Subpart A is referenced for such shipments in § 173.510.

Modal Parts: Sections 174.24 and 176.11 would be amended to exclude hazardous substances from the exceptions specified for materials classed as ORMs.

Sections 174.45, 175.45, 176.48 and 177.807 would be amended to reference the proposed new § 171.17 concerning the reporting of discharges involving hazardous substances.

The primary drafters of this notice are Alan I. Roberts, Lee E. Metcalfe, and George E. Cushmac of the Materials Transportation Bureau, and David Ortez of the Office of Chief Counsel of the Research and Special Programs Administration. Also, assistance was provided by Alexandre R. Tarsey of the Environmental Protection Agency.

In accordance with the foregoing, it is proposed to amend Parts 171, 172, 173, 174, 175, 176, and 177 of Title 49, Code of Federal Regulations, as follows:

PART 171—GENERAL INFORMATION, REGULATIONS, AND DEFINITIONS

1. § 171.1 would be revised to read as follows:

§ 171.1 Purpose and scope.

This subchapter prescribes the requirements of the Department of Transportation governing—

(a) The transportation of hazardous materials by, and their offering to—

(1) Carriers by rail car, aircraft and vessel (except as delegated at 49 CFR 1.46(t)).

(2) Interstate carriers by motor vehicle; and

(3) Intrastate carriers by motor vehicle so far as this subchapter relates to—

(i) Hazardous substances.

(b) The manufacture, fabrication, marking, maintenance, reconditioning, repairing, or testing of a package or container which is represented, marked, certified, or sold for use in such transportation as specified in paragraph (a) of this section.

2. Section 171.8 would be amended to add the following definitions in their proper alphabetical sequence:

§ 171.8 Definitions and abbreviations.

* * * * *

"EPA" means the U.S. Environmental Protection Agency. "Hazardous substance" means any material—

(a) That may pose an unreasonable risk to health and safety or property when transported in commerce;

(b) Which when discharged into or upon the navigable waters of the United States or adjoining shorelines may be harmful to the public health or welfare of the United States, including but not limited to fish, shellfish, wildlife, and public and private property, shorelines, and beaches, and

(c) That is subject to the regulations of the EPA found in 40 CFR Part 117.

* * * * *

"Reportable quantity" means the numbers in pounds and kilograms following the proper shipping name of each hazardous substance listed in § 172.101 of this subchapter for use as the reference quantity for the calculations to determine whether the statement specified by § 172.203(j)(2) of this subchapter is required to be entered on a shipping paper.

* * * * *

3. § 171.17 would be added to read as follows:

§ 171.17 Hazardous substance discharge report.

(a) When any amount of a hazardous substance (when a reportable

quantity of a hazardous substance is present as indicated on a shipping paper by the statement required by § 172.203(j)) is discharged (accidentally or intentionally) during transportation, the carrier (person in charge of the aircraft, vessel, transport vehicle or facility) shall—

(1) Contact as soon as practicable (day or night) the U.S. Coast Guard National Response Center at 800-424-8802 (District of Columbia: 426-2675);

(2) Furnish the official to whom the discharge report is made the following information:

(i) Name of person reporting the discharge;

(ii) Name and address of carrier represented by person reporting the discharge;

(iii) Phone number where reporter can be contacted;

(iv) Date, time, and location of incident (indicate pollution of land, water, or public water supply, if known);

(v) Type of vehicle (motor vehicle, aircraft, rail car, or vessel);

(vi) Type of incident (fire, breakage, intentional or accidental discharge);

(vii) As identified by the letter "E" on the shipping paper(s), the proper shipping name, hazard class, and quantity of hazardous substances present in the transport vehicle, aircraft or vessel, or in the area of the discharge if within the facility, and the amount discharged, to the extent available; and

(viii) The extent of injuries, if any.

(3) Enter on Part H of DOT Form F5800.1 the following information concerning the incident:

(i) If known, location of discharge in relation to surface waters, public water supply, ground water, wildlife habitats, and agricultural production areas;

(ii) Quantity of material removed, disposition of the material; and

(iii) Quantity of unremoved material and disposition (neutralized, etc.).

(b) Compliance with paragraphs (a)(1) and (a)(2) of this section satisfies the requirements of § 171.15(a) and (b).

PART 172—HAZARDOUS MATERIALS TABLE AND HAZARDOUS MATERIALS COMMUNICATIONS REGULATIONS

4. § 172.100 would be deleted. The material in § 172.100 paragraphs (a) through (h) would be redesignated § 172.101 paragraphs (a) through (h) with the following amendments: the heading and paragraphs (a) and (b) would be revised as set forth below; paragraph (c)(8) would be added as set forth below; the Hazardous Materials Table would be amended by changing the entries as indicated in the first listing and by adding in their proper alphabetical sequence the materials in the second listing as set forth below.

§ 172.100 [Deleted]

§ 172.101 Purpose and use of the Hazardous Materials Table.

(a) The Hazardous Materials Table set forth in this section constitutes a designation of the materials listed therein as hazardous materials for the purpose of transporation of those materials in commerce. In addition, it classifies and specifies requirements and refers to other requirements set forth elsewhere in this subchapter pertaining to the packaging, labeling and transporation of those materials.

(b) Column 1 contains the following symbols as appropriate: *, and upper case letters: A,W, and E.

(1) An asterisk before a proper shipping name means that the material described in column 2 may be subject to the regulations under class shown, may be subject to the regulations under another class, or may not be subject to the regulations of this subchapter.

(i) If the material meets the definition of the class listed in column 3, it shall be offered for transporation accordingly.

(ii) If a material does not meet the definition of the class listed in column 3, the shipper shall determine if the material meets the definition of any other hazard class and shall offer the material for transporation accordingly.

(iii) If the material does not meet the definition of the class listed, and the material is or contains a hazardous substance as indicated by the letter "E" in column 1 before a proper shipping name, the material shall be reclassed according to its hazard(s) and described by adding the name of the hazardous substance(s) in parentheses after the proper shipping name. However, such a material shall be reclassed as an ORM-E if it does not meet the hazard definition of any class. Each hazardous substance, as a chemical, mixture, or solution, is subject to the regulations of this subchapter notwithstanding the defining criteria for other hazardous materials.

(iv) If the material does not meet the definition of any hazard class and does not have the letter "E" in column 1 before the proper shipping name, it is not a hazardous material and is not subject to the regulations of this subchapter.

(2) The letter "A" in column 1 before a proper shipping name means that the material described in column 2 is subject to the requirements of this subchapter only for transporation by aircraft unless the letter "E" also appears in association with the entry.

(3) The letter "W" in column 1 before a proper shipping name means that the material described in column 2 is subject to the requirements of this subchapter only for transporation by vessel unless the letter "E" also appears in association with the entry.

(4) The letter "E" in column 1 before a proper shipping name means that the material described in column 2 is subject to the requirements of this subchapter regardless of the mode of transporation or hazard class.

(c) * * *

(8) The numbers in italic immediately following a proper shipping name of a material identified as a hazardous substance by the letter "E" in § 172.101 specify, in pounds and kilograms, the minimum quantity of the material as designated by EPA in 40 CFR Part 117 that for the purposes of § 172.203(j) constitutes a reportable quantity. For example: Sodium arsenate (RQ-1,000/454) means that the minimum reportable quantity is 1,000 pounds or 454 kilograms.

* * * *

§172.101 Hazardous Materials Table

(1) */W/A	(2) Hazardous materials descriptions and proper shipping names	(3) Hazard class	(4) Label(s) required (if not excepted)	(5) Packaging (a) Exceptions	(5) Packaging (b) Specific requirements	(6) Maximum net quantity in one package (a) Passenger carrying aircraft or railcar	(6) Maximum net quantity in one package (b) Cargo only aircraft	(7) Water shipments (a) Cargo vessel	(7) Water shipments (b) Passenger vessel	(7) Water shipments (c) Other requirements
	• (CHANGE) •									
E A •	Acetaldehyde ammonia (*RQ-1000/454*)	ORM-A	None	None	173.510	No limit	No limit			
E •	Acetaldehyde (*ethyl aldehyde*) (*RQ-1000/454*)	Flammable liquid	Flammable liquid	None	173.119	Forbidden	10 gallons	1,3	5	
E •	Acetic acid (*aqueous solution*) (*RQ-1000/454*)	Corrosive material	Corrosive	173.244	173.245	1 quart	10 gallons	1,2	1,2	Stow separate from nitric acid or oxidizing materials.
E •	Acetic acid, glacial (*RQ-1000/454*)	Corrosive material	Corrosive	173.244	173.245	1 quart	10 gallons	1,2	1,2	Stow separate from nitric acid or oxidizing materials. Segregation same as for flammable liquids.
E •	Acetic anhydride (*RQ-1000/454*)	Corrosive material	Corrosive	173.244	173.245	1 quart	1 gallon	1,2	1,2	
E •	Acetone cyanohydrin (*RQ-10/4.54*)	Poison B	Poison	None	173.346	Forbidden	55 gallons	1	5	Shade from radiant heat. Stow away from corrosive materials.
E •	Acetyl bromide (*RQ-5000/2270*)	Corrosive material	Corrosive	173.244	173.247	1 quart	1 gallon	1	1	Keep dry. Glass carboys not permitted on passenger vessels.
E •	Acetyl chloride (*RQ-5000/2270*)	Flammable liquid	Flammable liquid	173.244	173.247	1 quart	1 gallon	1	1	Stow away from alcohols. Keep cool and dry. Separate longitudinally by an intervening complete compartment or hold from explosives.
E •	Acrolein, inhibited (*RQ-1/0.454*)	Flammable liquid	Flammable liquid and Poison	None	173.122	Forbidden	1 quart	1,2	5	Keep cool. Stow away from living quarters.
E •	Acrylonitrile (*RQ-100/45.4*)	Flammable liquid	Flammable liquid and Poison	None	173.119	Forbidden	1 quart	1,2	5	Keep cool.
E A •	Aldrin, cast solid (*RQ-1/0.454*)	ORM-A	None	None	173.510	No limit	No limit			
E A •	Aldrin mixture, dry, with 65% or less aldrin (*RQ-1/0.454*)	ORM-A	None	None	173.510	No limit	No limit			
E •	Aldrin mixture, dry (*with more than 65% aldrin*) (*RQ-1/0.454*)	Poison B	Poison	173.364	173.376	50 pounds	200 pounds	1,2	1,2	
E •	Aldrin mixture, liquid (*with more than 60% aldrin*) (*RQ-1/0.454*)	Poison B	Poison	173.345	173.361	1 quart	55 gallons	1,2	1,2	If flash point less than 141 DEG F, segregation same as for flammable liquids.
E A •	Aldrin mixture, liquid, with 60% or less aldrin (*RQ-1/0.454*)	ORM-A	None	None	173.510	No limit	No limit			
E •	Aldrin (*RQ-1/0.454*)	Poison B	Poison	173.364	173.376	50 pounds	200 pounds	1,2	1,2	
E •	Allyl alcohol (*RQ-100/45.4*)	Flammable liquid	Flammable liquid and Poison	173.118	173.119	1 quart	10 gallons	1,2	1	
E •	Allyl chloride (*RQ-1000/454*)	Flammable liquid	Flammable liquid	None	173.119	Forbidden	10 gallons	1,3	5	
E •	Ammonia, anhydrous (*RQ-100/45.4*)	Nonflammable gas	Nonflammable gas	173.306	173.304 173.314 173.315	Forbidden	300 pounds	1,2	4	Stow in well ventilated space.
E •	Ammonia solution (*containing more than 44% ammonia*) (*RQ-1000/454*)	Nonflammable gas	Nonflammable gas	173.306	173.304 173.314 173.315	Forbidden	300 pounds	1,2	4	Stow in well ventilated space.
E •	Ammonium dichromate (*ammonium bichromate*) (*RQ-1000/454*)	Oxidizer	Oxidizer	173.153	173.154 173.235	25 pounds	100 pounds	1,2	1,2	
E A •	Ammonium fluoride (*RQ-5000/2270*)	ORM-B	None	None	173.510 173.800	25 pounds	100 pounds			
E •	Ammonium hydrogen fluoride solution (*RQ-5000/2270*)	Corrosive material	Corrosive	173.244	173.245	1 quart	5 gallons	1,2	1,2	Keep dry.
E •	Ammonium hydroxide (*containing not more than 44% ammonia*) (*RQ-1000/454*)	Corrosive material	Corrosive	173.244	173.245	2 gallons	2 gallons	1	4	
E •	Ammonium sulfide solution (*RQ-5000/2270*)	Flammable liquid	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1,2	
E •	Amyl acetate (*RQ-1000/454*)	Flammable liquid	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1,2	
E •	Aniline oil, liquid (*RQ-1000/454*)	Poison B	Poison	None	173.347	Forbidden	55 gallons	1,2	1,2	Stow away from oxidizing materials and acids.

§172.101 Hazardous Materials Table (cont'd)

(1)	(2)	(3)	(4)	(5) Packaging		(6) Maximum net quantity in one package		(7) Water shipments		
*/W/A	Hazardous materials descriptions and proper shipping names	Hazard class	Label(s) required (if not excepted)	(a) Exceptions	(b) Specific requirements	(a) Passenger carrying aircraft or railcar	(b) Cargo only aircraft	(a) Cargo vessel	(b) Passenger vessel	(c) Other requirements
E •	Antimony pentachloride (*RQ-1000/454*)	Corrosive material	Corrosive	None	173.247	1 quart	1 quart	1	1	Keep dry. Glass carboys not permitted on passenger vessels.
E •	Antimony pentachloride solution (*RQ-1000/454*)	Corrosive material	Corrosive	173.244	173.245	1 quart	5 pints	1	1	Keep dry. Glass carboys not permitted on passenger vessels.
E A •	Antimony potassium tartrate solid (*RQ-1000/454*)	ORM-A	None	None	173.510	No limit	No limit			
E •	Antimony trichloride, solid (*RQ-1000/454*)	Corrosive material	Corrosive	173.244	173.245b	25 pounds	100 pounds	1,2	1,2	Keep dry.
E* •	Antimony trichloride solution (*RQ-1000/454*)	Corrosive material	Corrosive	173.244	173.245	1 quart	5 pints	1	1	Keep dry.
E •	Arsenic pentoxide, solid (*RQ-5000/2270*)	Poison B	Poison	173.364	173.365	50 pounds	200 pounds	1,2	1,2	
E •	Arsenic trichloride, liquid (*RQ-5000/454*)	Poison B	Poison	173.345	173.346	1 quart	55 gallons	1,2	1,2	
E •	Arsenic trioxide, solid (*RQ-5000/454*)	Poison B	Poison	173.364	173.366 173.368	50 pounds	200 pounds	1,2	1,2	
E •	Barium cyanide, solid (*RQ-10/4.54*)	Poison B	Poison	173.370	173.370	25 pounds	200 pounds	1,2	1,2	Stow away from acids
E •	Benzene (benzol) (*RQ-1000/454*)	Flammable liquid	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
E •	Benzoyl chloride(*RQ-1000/454*)	Corrosive material	Corrosive	173.244	173.247	1 quart	1 quart	1	1	Keep dry. Glass carboys not permitted on passenger vessels.
E •	Benzyl chloride (*RQ-100/45.4*)	Corrosive material	Corrosive	173.244	173.295	Forbidden	1 quart	1	4	Keep dry.
E •	Butyl acetate (*RQ-5000/2270*)	Flammable liquid	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
E •	Butylamine (*RQ-1000/454*)	Flammable liquid	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
E •	Butyric acid (*RQ-5000/2270*)	Corrosive material	Corrosive	173.244	173.245	1 quart	10 gallons	1,2	1,2	
E •	Calcium arsenate, solid (*RQ-1000/454*)	Poison B	Poison	173.364	173.367 173.368	50 pounds	200 pounds	1,2	1,2	
E •	Calcium arsenite, solid (*RQ-1000/454*)	Poison B	Poison	173.364	173.365	50 pounds	200 pounds	1,2	1,2	
E •	Calcium carbide (*RQ-5000/2270*)	Flammable solid	Flammable solid and dangerous when wet	None	173.178	Forbidden	25 pounds	1,2	1,2	Keep dry. Stow away from copper, its alloys, and salts.
E •	Calcium cyanide, solid *or* Calcium cyanide mixture, solid (*RQ-10/4.54*)	Poison B	Poison	173.370		25 pounds	200 pounds	1,2	1,2	Stow away from corrosive liquids. Keep dry.
E •	Calcium hypochlorite mixture, *dry*. (*Containing more than 39% available chlorine*) (*RQ-10/4.54*)	Oxidizer	Oxidizer	173.153	173.217	50 pounds	100 pounds	1,2	1,2	Keep cool and dry.
E A W •	Calcium oxide (*RQ-5000/2270*)	ORM-B	None	None	173.850	25 pounds	100 pounds	1,2	1,2	Keep dry. Stow away from explosives, acids, combustible materials, and ammonium salts.
E A •	Carbaryl (*RQ-100/45.4*)	ORM-A	None	None	173.510	No limit	No limit			
E •	Carbolic acid, liquid *or* Phenol, liquid (*liquid tar acid containing over 50% benzophenol*) (*RQ-1000/454*)	Poison B	Poison	173.345	173.349	1 quart	55 gallons	1,2	1,2	
E •	Carbolic acid, *or* Phenol (*RQ-1000/454*)	Poison B	Poison	173.364	173.369	50 pounds	250 pounds	1,2	1,2	
E •	Carbon bisulfide, *or* Carbon disulfide (*RQ-5000/2270*)	Flammable liquid	Flammable liquid	None	173.121	Forbidden	Forbidden	1	5	Keep cool. Not permitted on any vessel transporting explosives.
E A W •	Carbon tetrachloride (*RQ-5000/2270*)	ORM-A	None	None	173.620	1 quart	55 gallons	1,2	1,2	Stow away from living quarters.
E •	Chlordane, liquid (*RQ-1/0.454*)	Combustible liquid	None	173.118a	None	No limit	No limit	1,2	1,2	
E •	Chlorine (*RQ-10/4.54*)	Nonflammable gas	Nonflammable gas and Poison	None	173.304 173.314 173.315	Forbidden	Forbidden	1,2	5	Stow in a well-ventilated space. Stow away from organic materials.
E •	Chlorobenzol (*RQ-100/45.4*)	Flammable liquid	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1,2	

§172.101 Hazardous Materials Table (cont'd)

(1)	(2)	(3)	(4)	(5) Packaging		(6) Maximum net quantity in one package		(7) Water shipments		
*/W/A	Hazardous materials descriptions and proper shipping names	Hazard class	Label(s) required (if not excepted)	(a) Exceptions	(b) Specific requirements	(a) Passenger carrying aircraft or railcar	(b) Cargo only aircraft	(a) Cargo vessel	(b) Passenger vessel	(c) Other requirements
E A W *	Chloroform (*RQ-5000/2270*)	ORM-A	None	None	173.630	10 gallons	55 gallons	1,2	1,2	Stow away from living quarters and foodstuffs.
E *	Chlorosulfonic acid (*RQ-1000/454*)	Corrosive material	Corrosive	173.244	173.254	1 quart	1 quart	1	1	Keep dry. Glass carboys not permitted on passenger vessels.
E *	Chromic acid mixture, dry (*RQ-1000/454*)	Oxidizer	Oxidizer	173.153	173.164	25 pounds	100 pounds	1,2	1,2	Stow away from foodstuffs.
E *	Chromic acid, solid (*RQ-1000/454*)	Oxidizer	Oxidizer	173.153	173.164	25 pounds	100 pounds	1,2	1,2	Stow away from foodstuffs. Stow separate from flammable liquids and solids.
E *	Chromic acid solution (*RQ-1000/454*)	Corrosive material	Corrosive	173.244	173.287	1 quart	1 gallon	1	1	
E *	Copper acetoarsenite, solid (*emerald green, imperial green, King's green, moss green, meadow green, mitis green, parrot green, Vienna green*) (*RQ-100/45.4*)	Poison B	Poison	173.364	173.367	50 pounds	200 pounds	1,2	1,2	
A E *	Copper chloride (*RQ-10/4.54*)	ORM-B	None	None	173.510 173.800	25 pounds	100 pounds			
E *	Crotonaldehyde (*RQ-100/45.4*)	Flammable liquid	Flammable liquid and Poison	173.118	173.119	1 quart	1 gallon	1,2	1	
E *	Cyanogen chloride *containing less than 0.9% water* (*RQ-10/4.54*)	Poison A	Nonflammable gas and Poison Gas	None	173.328	Forbidden	Forbidden	1	5	Shade from radiant heat.
E *	Cyclohexane (*RQ-1000/454*)	Flammable liquid	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,3	4	
E A *	DDT *or* Dichlorodiphenyltrichloroethane (*RQ-1/0.454*)	ORM-A	None	None	173.510	No limit	No limit			
E A *	Diazinon (*RQ-1/0.454*)	ORM-A	None	None	173.510	No limit	No limit			
E A *	Dichlorobenzene, ortho, liquid (*RQ-100/45.4*)	ORM-A	None	None	173.510	No limit	No limit			
E A *	Dichlorobenzene, para, solid (*RQ-100/45.4*)	ORM-A	None	None	173.510	No limit	No limit			
E A *	2,4-Dichlorophenoxyacetic acid (*RQ-100/45.4*)	ORM-A	None	None	173.510					
E *	Dichloropropene and propylene dichloride mixture (*RQ-5000/2270*)	Corrosive material	Corrosive	173.244	173.245	1 quart	10 gallons	1,2	1,2	
E A *	Dieldrin (*RQ-1/0.454*)	ORM-A	None	None	173.510	No limit	No limit			
E *	Diethylamine (*RQ-1000/454*)	Flammable liquid	Flammable liquid	173.118	173.119	Forbidden	5 pints	1,3	4	
E *	Dimethylamine, anhydrous (*RQ-1000/454*)	Flammable gas	Flammable gas	173.306	173.304 173.314 173.315	Forbidden	300 pounds	1,2	4	
E *	Dimethylamine, aqueous solution (*RQ-1000/454*)	Flammable liquid	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
E *	Dinitrobenzene, solid, *or* dinitrobenzol, solid (*RQ-1000/454*)	Poison B	Poison	173.364	173.371	50 pounds	200 pounds	1,2	1,2	
E *	Dinitrobenzene solution (*RQ-1000/454*)	Poison B	Poison	173.345	173.346	1 quart	55 gallons	1,2	1,2	
E *	Dinitrophenol solution (*RQ-1000/454*)	Poison B	Poison	173.345	173.362a	1 quart	65 pounds	1,2	1,2	Stow away from heavy metals and their compounds. If flash point is 141 DEG F or less segregation same as for flammable liquids.
E *	Ethyl benzene (*RQ-1000/454*)	Flammable liquid	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
E A W *	Ethylene dibromide (1,2-dibromethane) (*RQ-1000/454*)	ORM-A	None	None	173.620	1 quart	55 gallons	1,2	1,2	Stow away from living quarters.
E *	Ethylene dichloride (*RQ-5000/2270*)	Flammable liquid	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	

§172.101 Hazardous Materials Table (cont'd)

(1) */W/A	(2) Hazardous materials descriptions and proper shipping names	(3) Hazard class	(4) Label(s) required (if not excepted)	(5) Packaging (a) Exceptions	(5) Packaging (b) Specific requirements	(6) Maximum net quantity in one package (a) Passenger carrying aircraft or railcar	(6) Maximum net quantity in one package (b) Cargo only aircraft	(7) Water shipments (a) Cargo vessel	(7) Water shipments (b) Passenger vessel	(7) Water shipments (c) Other requirements
EA*	Ferric chloride, solid, *anhydrous* (*RQ-1000/454*)	ORM-B	None	None	173.510	25 pounds	100 pounds			
E*	Ferric chloride solution (*RQ-1000/454*)	Corrosive material	Corrosive	173.244	173.245 173.245a	1 quart	10 quarts	1,2	1,2	
EAW*	Formaldehyde, *or* formalin solution (*in containers of 110 gallons or less*) (*RQ-1000/454*)	ORM-A	None	None	173.510	10 gallons	55 gallons	1,2	4	
E*	Formaldehyde, *or* formalin solution (*in containers over 110 gallons*) (*RQ-1000/454*)	Combustible liquid	None	173.118a	None	10 gallons	55 gallons	1,2	1,2	
E*	Formic acid (*RQ-5000/2270*)	Corrosive material	Corrosive	173.244	173.245 173.289	1 quart	5 gallons	1,2	1,2	Glass carboys in hampers not permitted under deck.
E*	Formic acid solution (*RQ-5000/2270*)	Corrosive material	Corrosive	173.244	173.245 173.289	1 quart	5 gallons	1,2	1,2	
E*	Furfural (*RQ-1000/454*)	Combustible liquid	None	173.118a	None	No limit	No limit	1,2	1	
E*	Hydrochloric acid, anhydrous. *See* Hydrogen chloride.									
E*	Hydrochloric acid mixture (*RQ-5000/2270*)	Corrosive material	Corrosive	173.244	173.263	1 quart	1 gallon	1	1	Glass carboys not permitted on passenger vessel.
E*	Hydrochloric acid solution, inhibited (*RQ-5000/2270*)	Corrosive material	Corrosive	173.244	173.263	1 quart	1 gallon	1	1	Glass carboys not permitted on passenger vessel.
E*	Hydrochloric (*muriatic*) acid (*RQ-5000/2270*)	Corrosive material	Corrosive	173.244	173.263	1 quart	1 gallon	1	1	Glass carboys not permitted on passenger vessel.
E*	Hydrocyanic acid, liquefied (*RQ-10/4.54*)	Poison A	Flammable gas and Poison gas	None	173.332	Forbidden	Forbidden	1	5	
E*	Hydrocyanic acid (*prussic*), solution (*5% or more hydrocyanic acid*) (*RQ-10/4.54*)	Poison A	Flammable gas and Poison gas	None	173.332	Forbidden	Forbidden	1	5	Shade from radiant heat. Aqueous solutions containing more than 20 percent hydrogen cyanide are not permitted in transportation by water.
E*	Hydrocyanic acid solution, less than 5% hydrocyanic acid (*RQ-10/4.54*)	Poison B	Poison	None	173.351	Forbidden	25 pounds	1	5	Shade from radiant heat.
E*	Hydrofluoric acid solution (*RQ-5000/2270*)	Corrosive material	Corrosive	173.244	173.264	1 quart	1 gallon	1	4	
E*	Hydrofluoric and sulfuric acids, mixture (*RQ-5000/2270*)	Corrosive material	Corrosive	None	173.290	Forbidden	1 gallon	1	5	
E*	Hydrogen sulfide (*RQ-100/45.4*)	Flammable gas	Flammable gas and Poison	None	173.304 173.314	Forbidden	300 pounds	1	5	
E*	Isoprene (*RQ-1000/454*)	Flammable liquid	Flammable liquid	173.118	173.119	Forbidden	10 gallons	1,3	4	
E*	Lead arsenate, solid (*RQ-5000/2270*)	Poison B	Poison	173.364	173.367	50 pounds	200 pounds	1,2	1,2	
EA*	Lead chloride (*RQ-5000/2270*)	ORM-B	None	None	173.510 173.800	25 pounds	100 pounds			
E*	Lead nitrate (*RQ-5000/2270*)	Oxidizer	Oxidizer	173.153	173.182	25 pounds	100 pounds	1,2	1,2	Stow away from foodstuffs.
E*	Lead sulfate, solid (*containing more than 3% free acid*) (*RQ-5000/2270*)	Corrosive material	Corrosive	173.244	173.245b	25 pounds	100 pounds	1,2	1,2	
EA*	Lindane (*RQ-1/0.454*)	ORM-A	None	None	173.510	No limit	No limit			
EA*	Malathion (*RQ-10/4.54*)	ORM-A	None	None	173.510	No limit	No limit			
E*	Mercuric cyanide, solid (*RQ-1/0.454*)	Poison B	Poison	173.370		25 pounds	200 pounds	1,2	1,2	Stow away from acids.
E*	Mercuric sulfate, solid (*RQ-10/4.54*)	Poison B	Poison	173.364	173.365	50 pounds	200 pounds	1,2	1,2	
E*	Mercuric sulfocyanate, solid or mercuric thiocyanate, solid (*RQ-10/4.54*)	Poison B	Poison	173.364	173.365	50 pounds	200 pounds	1,2	1,2	
E*	Mercurous nitrate, solid (*RQ-10/4.54*)	Oxidizer	Oxidizer	173.153	173.154	50 pounds	100 pounds	1,2	1,2	
E*	Methyl mercaptan (*RQ-100/45.4*)	Flammable gas	Flammable gas	173.306	173.304 173.314 173.315	Forbidden	300 pounds	1,2	1	
E*	Methyl methacrylate monomer, inhibited (*RQ-5000/2270*)	Flammable liquid	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	

§172.101 Hazardous Materials Table (cont'd)

(1) */W/A	(2) Hazardous materials descriptions and proper shipping names	(3) Hazard class	(4) Label(s) required (if not excepted)	(5) Packaging (a) Exceptions	(5) Packaging (b) Specific requirements	(6) Maximum net quantity in one package (a) Passenger carrying aircraft or railcar	(6) Maximum net quantity in one package (b) Cargo only aircraft	(7) Water shipments (a) Cargo vessel	(7) Water shipments (b) Passenger vessel	(c) Other requirements
E	Methyl methacrylate monomer, uninhibited (*high-purity, if acceptable under Sec. 173.21 of this subchapter*) (*RQ-5000/2270*)	Flammable liquid	Flammable liquid	173.118	173.119	Forbidden	Forbidden	1,2	1	
E	Methyl parathion, liquid (*RQ-100/45.4*)	Poison B	Poison	None	173.358	Forbidden	1 quart	1,3	1,3	
E	Methyl parathion mixture, dry (*RQ-100/45.4*)	Poison B	Poison	173.377	173.377	50 pounds	200 pounds	1,2	1,2	
E	Methyl parathion mixture, liquid, (*containing 25% or less methyl parathion*) (*RQ-100/45.4*)	Poison B	Poison	None	173.359	1/2 pint	1 quart	1,2	1,2	
E	Methyl parathion mixture, liquid, (*containing over 25% methyl parathion*) (*RQ-100/45.4*)	Poison B	Poison	None	173.359	Forbidden	1 quart	1,2	1,2	
E	Monoethylamine (*RQ-1000/454*)	Flammable liquid	Flammable liquid	None	173.148	Forbidden	5 pints	1,2	5	Segregation same as for flammable gas.
E	Monomethylamine, anhydrous (*RQ-1000/454*)	Flammable gas	Flammable gas	173.306	173.304 173.314 173.315	Forbidden	300 pounds	1,2	4	
E	Monomethylamine, aqueous solution (*RQ-1000/454*)	Flammable liquid	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,3	4	Stow away from mercury and its compounds.
A W	Naphthalene *or* Naphthalin (*RQ-5000/2270*)	ORM-A	None	None	173.655	25 pounds	300 pounds	1,2	1,2	Segregation same as for flammable solids.
E	Nitric acid, 40% or less (*RQ-1000/454*)	Corrosive material	Corrosive	None	173.268	Forbidden	5 pints	1	5	Stow away from hydrazine, separate from diethylenetriamine.
E	Nitric acid, fuming (*RQ-1000/454*)	Oxidizer	Oxidizer and Poison	None	173.268	Forbidden	Forbidden	1	5	Segregation same as for corrosive materials. Stow away from hydrazine, separate from diethylenetriamine.
E	Nitric acid (*over 40%*) (*RQ-1000/454*)	Oxidizer	Oxidizer and Corrosive	None	173.268	Forbidden	5 pints	1	5	Segregation same as for corrosive materials. Stow away from hydrazine, separate from diethylenetriamine.
E	Nitrobenzol, liquid (*oil of mirbane, nitrobenzene*) (*RQ-1000/454*)	Poison B	Poison	173.345	173.346	1 quart	55 gallons	1,2	1,2	
E	Nitrogen dioxide, liquid (*RQ-1000/454*)	Poison A	Oxidizer and Poison gas	None	173.336	Forbidden	Forbidden	1	5	Segregation same as for nonflammable gases. Stow away from organic materials.
E	Oleum (*sulfuric acid fuming*) (*RQ-1000/454*)	Corrosive material	Corrosive	None	173.272	Forbidden	5 pints	1,2	1	Under deck stowage must be in metal drums only. Keep dry.
E	Parathion and compressed gas mixture (*RQ-1/0.454*)	Poison A	Poison gas	None	173.334	Forbidden	Forbidden	1,3	5	
E	Parathion, liquid (*RQ-1/0.454*)	Poison B	Poison	None	173.358	Forbidden	1 quart	1,3		
E	Parathion mixture, dry (*RQ-1/0.454*)	Poison B	Poison	173.377	173.377	50 pounds	200 pounds	1,3	1,3	
E	Parathion mixture, liquid (*RQ-1/0.454*)	Poison B	Poison	None	173.359	Forbidden	1 quart	1,3	1,3	
E	Phosgene (diphosgene) (*RQ-5000/2270*)	Poison A	Poison gas	None	173.333	Forbidden	Forbidden	1	5	
E	Phosphoric acid *or* Phosphoric Acid Solution (*RQ-5000/2270*)	Corrosive material	Corrosive	173.244	173.245	1 quart	10 gallons	1,2	1,2	Glass carboys in hampers not permitted under deck.
E	Phosphorus, amorphous, red (*RQ-1/0.454*)	Flammable solid	Flammable solid	None	173.189	Forbidden	11 pounds	1,2	1,2	
E	Phosphorus oxychloride (*RQ-5000/2270*)	Corrosive material	Corrosive	None	173.271	Forbidden	1 quart	1	1	Keep dry. Glass carboys not permitted on passenger vessels.
E	Phosphorus pentasulfide (*RQ-1000/454*)	Flammable solid	Flammable solid and Dangerous when wet	None	173.225	Forbidden	11 pounds	1,2	1,2	Separate from oxidizing material.
E	Phosphorus trichloride (*RQ-5000/2270*)	Corrosive material	Corrosive	None	173.271	Forbidden	1 quart	1	1	Keep dry. Glass carboys not permitted on passenger vessels.
E	Phosphorus, white *or* yellow, dry (*RQ-1/0.454*)	Flammable solid	Flammable solid and Poison	None	173.190	Forbidden	Forbidden	1,2	5	Separate from flammable gases or liquids, oxidizing materials, or organic peroxides.
E	Phosphorus, white *or* yellow, in water (*RQ-1/0.454*)	Flammable solid	Flammable solid and Poison	None	173.190	Forbidden	25 pounds	1,2	5	Separate from flammable gases or liquids, oxidizing materials, or organic peroxides.
E	Potassium arsenate, solid (*RQ-1000/454*)	Poison B	Poison	173.364	173.365	50 pounds	200 pounds	1,2	1,2	
E	Potassium arsenite, solid (*RQ-1000/454*)	Poison B	Poison	173.364	173.365	50 pounds	200 pounds	1,2	1,2	

§172.101 Hazardous Materials Table (cont'd)

(1) */W/A	(2) Hazardous materials descriptions and proper shipping names	(3) Hazard class	(4) Label(s) required (if not excepted)	(5) Packaging (a) Exceptions	(5) Packaging (b) Specific requirements	(6) Maximum net quantity in one package (a) Passenger carrying aircraft or railcar	(6) Maximum net quantity in one package (b) Cargo only aircraft	(7) Water shipments (a) Cargo vessel	(7) Water shipments (b) Passenger vessel	(7) Water shipments (c) Other requirements
E *	Potassium cyanide, solid (*RQ-10/4.54*)	Poison B	Poison	173.370		25 pounds	200 pounds	1,2	1,2	Stow away from acids.
E *	Potassium cyanide solution (*RQ-10/4.54*)	Poison B	Poison	173.345	173.352	1 quart	55 gallons	1,2	1,2	Stow away from acids.
E A *	Potassium dichromate (*RQ-1000/454*)	ORM-A	None	None	173.510	No limit	No limit			
E *	Potassium hydroxide, dry solid, flake, bead, *or* granular (*RQ-1000/454*)	Corrosive material	Corrosive	173.244	173.245b	25 pounds	100 pounds	1,2	1,2	Keep dry. Do not stow with metals or alloys such as brass, copper, tin, zinc, aluminum, solder, or lead.
E *	Potassium hydroxide, liquid *or* solution (*RQ-1000/454*)	Corrosive material	Corrosive	173.244	173.249	1 quart	10 gallons	1,2	1,2	
E *	Potassium permanganate (*RQ-100/45.4*)	Oxidizer	Oxidizer	173.153	173.154 173.194	25 pounds	100 pounds	1,2	1,2	Separate from ammonium compounds and hydrogen peroxide.
E *	Propionic acid (*RQ-5000/2270*)	Corrosive material	Corrosive	173.244	173.245	1 quart	5 gallons	1,2	1,2	Separated by a complete compartment or hold from organic peroxides.
E *	Propionic acid solution (*RQ-5000/2270*)	Corrosive material	Corrosive	173.244	173.245	1 quart	10 gallons	1,2	1,2	Separated by a complete compartment or hold from organic peroxides.
E *	Propionic anhydride (*RQ-5000/2270*)	Corrosive material	Corrosive	173.244	173.245	1 quart	1 quart	1,2	1	Keep dry.
E *	Propylene dichloride (*RQ-5000/2270*)	Flammable liquid	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
E *	Propylene oxide (*RQ-5000/2270*)	Flammable liquid	Flammable liquid	173.118	173.119	Forbidden	1 gallon	1,3	4	
E *	Silver nitrate (*RQ-1/0.454*)	Oxidizer	Oxidizer	173.153	173.182	25 pounds	100 pounds	1,2	1,2	Stow away from foodstuffs.
E *	Sodium arsenate (*RQ-1000/454*)	Poison B	Poison	173.364	173.365 173.368	50 pounds	200 pounds	1,2	1,2	
E *	Sodium arsenite (*solution*) liquid (*RQ-1000/454*)	Poison B	Poison	173.345	173.346	1 quart	55 gallons	1,2	1,2	
E *	Sodium cyanide, solid (*RQ-10/4.54*)	Poison B	Poison	173.370		25 pounds	200 pounds	1,2	1,2	Stow away from acids.
E *	Sodium cyanide solution (*RQ-10/4.54*)	Poison B	Poison	173.345	173.352	1 quart	55 gallons	1,2	1,2	Stow away from acids.
E A *	Sodium dichromate (*RQ-1000/454*)	ORM-A	None	None	173.510	No limit	No limit			
E A *	Sodium fluoride, solid (*RQ-5000/2270*)	ORM-B	None	None	173.510	No limit	No limit			
E *	Sodium fluoride solution (*RQ-5000/2270*)	Corrosive material	Corrosive	173.244	173.245	1 quart	5 gallons	1,2	1,2	Stow away from acids
E A *	Sodium hydrogen sulfite, solid (*RQ-5000/2270*)	ORM-B	None	None	173.800	25 pounds	100 pounds			
E *	Sodium hydroxide, dry solid, flake, bead, *or* granular (*RQ-1000/454*)	Corrosive material	Corrosive	173.244	173.245b	25 pounds	200 pounds	1,2	1,2	Keep dry.
E *	Sodium hydroxide, liquid *or* solution (*RQ-1000/454*)	Corrosive material	Corrosive	173.244	173.249	1 quart	5 gallons	1,2	1,2	
E *	Sodium, metal dispersion in organic solvent (*RQ-1000/454*)	Flammable solid	Flammable solid and Dangerous when wet	None	173.230	Forbidden	10 pounds	1,2	5	Segregation same as for flammable solids labeled Dangerous When Wet.
E *	Sodium, metal liquid alloy (*RQ-1000/454*)	Flammable solid	Flammable solid and Dangerous when wet	None	173.202	Forbidden	1 pound	1,2	5	Segregation same as for flammable solids labeled Dangerous When Wet.
E *	Sodium, metal or metallic (*RQ-1000/454*)	Flammable solid	Flammable solid and Dangerous when wet	None	173.206	Forbidden	25 pounds	1,2	5	Segregation same as for flammable solids labeled Dangerous When Wet.
E *	Sodium methylate, alcohol mixture (*RQ-1000/454*)	Combustible liquid	None	173.118a	None	No limit	No limit	1,2	1,2	
E *	Sodium methylate, alcohol mixture (*RQ-1000/454*)	Flammable liquid	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
E *	Sodium methylate, alcohol mixture (*RQ-1000/454*)	Corrosive material	Corrosive	173.244	173.245	1 quart	1 quart	1,2	1,2	
E *	Sodium methylate, dry (*RQ-1000/454*)	Flammable solid	Flammable solid	173.153	173.154	25 pounds	100 pounds	1,2	1	Segregation same as for flammable solids labeled Dangerous When Wet.
E *	Sodium nitrite (*RQ-100/45.4*)	Oxidizer	Oxidizer	173.153	173.234	25 pounds	100 pounds	1,2	1,2	Stow separate from ammonium compounds and cyanides. Bagged material not permitted on passenger vessels.

§172.101 Hazardous Materials Table (cont'd)

(1)	(2)	(3)	(4)	(5) Packaging		(6) Maximum net quantity in one package		(7) Water shipments		
*/W/A	Hazardous materials descriptions and proper shipping names	Hazard class	Label(s) required (if not excepted)	(a) Exceptions	(b) Specific requirements	(a) Passenger carrying aircraft or railcar	(b) Cargo only aircraft	(a) Cargo vessel	(b) Passenger vessel	(c) Other requirements
E •	Strychnine salt, solid (*RQ-10/4.54*)	Poison B	Poison	173.364	173.365	50 pounds	200 pounds	1,2	1,2	
E •	Strychnine, solid (*RQ-10/4.54*)	Poison B	Poison	None	173.377	Forbidden	200 pounds	1,2	1,2	
E •	Styrene monomer, inhibited (*RQ-1000/454*)	Flammable liquid	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1,2	
E •	Sulfur chloride (*mono and di*) (*RQ-1000/454*)	Corrosive material	Corrosive	None	173.247	Forbidden	1 gallon	1	1	Keep dry. Glass carboys not permitted on passenger vessels.
E •	Sulfuric acid (*For fuming sulfuric acid, see Oleum*) (*RQ-1000/454*)	Corrosive material	Corrosive	173.244	173.272	1 quart	1 gallon	1	1	Keep dry. Under deck stowage is permitted on cargo vessels only in metal drums.
E •	Sulfuric acid, spent (*RQ-1000/454*)	Corrosive material	Corrosive	None	173.248	Forbidden	1 quart	1	1	Under deck stowage is permitted on cargo vessels only in metal drums.
E •	Tetraethyl lead, liquid (*including flash point for export shipment by water*) (*RQ-100/45.4*)	Poison B	Poison	None	173.354	Forbidden	55 gallons	1	5	If flash point is 141 deg F. or less, segregation must be the same as for flammable liquids.
E •	Tetraethyl pyrophosphate and compressed gas mixture (*RQ-100/45.4*)	Poison A	Poison gas	None	173.334	Forbidden	Forbidden	1	5	Shade from radiant heat. Stow away from living quarters. Segregation same as for nonflammable gases.
E •	Tetraethyl pyrophosphate, liquid (*RQ-100/45.4*)	Poison B	Poison	None	173.358	Forbidden	1 quart	1,2	5	
E •	Tetraethyl pyrophosphate mixture, dry (*RQ-100/45.4*)	Poison B	Poison	None	173.327	Forbidden	200 pounds	1,2	5	
E •	Tetraethyl pyrophosphate mixture, liquid (*RQ-100/45.4*)	Poison B	Poison	None	173.359	Forbidden	1 quart	1,2	5	
E •	Thallium sulfate, solid (*RQ-1000/454*)	Poison B	Poison	173.364	173.365	50 pounds	200 pounds	1,2	1,2	
E •	Toluene (*toluol*) (*RQ-1000/454*)	Flammable liquid	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
E A •	Trichloroethylene (*RQ-1000/454*)	ORM-A	None	None	173.510 173.605	10 gallons	55 gallons			
E •	Triethylamine (*RQ-5000/2270*)	Flammable liquid	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
E •	Trimethylamine, anhydrous (*RQ-1000/454*)	Flammable gas	Flammable gas	173.306	173.364 173.314 173.315	Forbidden	300 pounds	1	4	
E •	Trimethylamine, aqueous solution (*RQ-1000/454*)	Flammable liquid	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	Stow away from mercury and mercury compounds.
E •	Uranyl nitrate, solid (*RQ-5000/2270*)	Radioactive material	Radioactive and Oxidizer	173.392	173.393 173.396			1,2	1,2	Separate longitudinally by an intervening hold or compartment from explosives.
E •	Vinyl acetate (*RQ-1000/454*)	Flammable liquid	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
E •	Vinylidene chloride, inhibited (*RQ-5000/2270*)	Flammable liquid	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,3	4	
E •	Xylene (*xylol*) (*RQ-1000/454*)	Flammable liquid	Flammable liquid	173.118	173.119	1 quart	10 gallons	1,2	1	
E •	Zinc chloride solution (*RQ-5000/2270*)	Corrosive material	Corrosive	173.244	173.245	1 quart	1 quart	1,2	1,2	
E •	Zinc cyanide (*RQ-10/4.54*)	Poison B	Poison	173.370		25 pounds	200 pounds	1,2	1,2	Stow away from acids.
E •	Zinc nitrate (*RQ-5000/2270*)	Oxidizer	Oxidizer	173.153	173.182	25 pounds	100 pounds	2	2	
E •	Zirconium tetrachloride, solid (*RQ-5000/2270*)	Corrosive material	Corrosive	173.244	173.245b	25 pounds	100 pounds	1,2	1,2	
	• (ADD) •									
E •	Adipic acid (*RQ-5000/2270*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E A •	Aluminium sulfate (*RQ-5000/2270*)	ORM-B	None	None	173.510	25 pounds	100 pounds	2	2	
E •	Ammonium acetate (*RQ-5000/2270*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Ammonium benzoate (*RQ-5000/2270*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Ammonium bicarbonate (*RQ-5000/2270*)	ORM-E	None	None	173.510	No limit	No limit	2	2	

§172.101 Hazardous Materials Table (cont'd)

(1)	(2)	(3)	(4)	(5) Packaging		(6) Maximum net quantity in one package		(7) Water shipments		
*/W/A	Hazardous materials descriptions and proper shipping names	Hazard class	Label(s) required (if not excepted)	(a) Exceptions	(b) Specific requirements	(a) Passenger carrying aircraft or railcar	(b) Cargo only aircraft	(a) Cargo vessel	(b) Passenger vessel	(c) Other requirements
E A •	Ammonium bisulfite, solid (*RQ-5000/2270*)	ORM-B	None	None	173.510	25 pounds	100 pounds	2	2	
E •	Ammonium bisulfite solution (*RQ-5000/2270*)	Corrosive material	Corrosive	173.244	173.245	1 quart	5 gallons	2	2	
E A •	Ammonium carbamate (*RQ-5000/2270*)	ORM-A	None	None	173.510	50 pounds	No limit	2	2	Keep away from heat.
E A •	Ammonium carbonate (*RQ-5000/2270*)	ORM-A	None	None	173.510	50 pounds	No limit	2	2	Keep away from heat, acids, alum and salts of iron or zinc.
E •	Ammonium chloride (*RQ-5000/2270*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Ammonium chromate (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Ammonium citrate (*RQ-5000/2270*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E A •	Ammonium fluoborate (*RQ-5000/2270*)	ORM-B	None	None	173.510	25 pounds	100 pounds	2	2	
E •	Ammonium hydrogen fluoride, solid (*RQ-5000/2270*)	Corrosive material	Corrosive	173.244	173.245b	25 pounds	100 pounds	2	2	
E •	Ammonium oxalate (*RQ-5000/2270*)	ORM-A	None	None	173.510	25 pounds	100 pounds	2	2	
E A •	Ammonium silicofluoride (*RQ-1000/454*)	ORM-B	None	None	173.510	25 pounds	100 pounds	2	2	
E •	Ammonium sulfamate (*RQ-5000/2270*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Ammonium sulfite (*RQ-5000/2270*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Ammonium tartrate (*RQ-5000/2270*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Ammonium thiocyanate (*RQ-5000/2270*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Ammonium thiosulfate (*RQ-5000/2270*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Antimony tribromide, solid (*RQ-1000/454*)	Corrosive material	Corrosive	173.244	173.245b	25 pounds	100 pounds	1,2	1,2	Keep dry.
E •	Antimony tribromide, solution (*RQ-1000/454*)	Corrosive material	Corrosive	173.244	173.245	1 quart	5 pints	2	2	Keep dry.
E •	Antimony trifluoride, solid (*RQ-1000/454*)	Corrosive material	Corrosive	173.244	173.245b	25 pounds	100 pounds	1,2	1,2	Keep dry.
E •	Antimony trifluoride, solution (*RQ-1000/454*)	Corrosive material	Corrosive	173.244	173.245	1 quart	5 pints	2	2	Keep dry.
E •	Antimony trioxide (*RQ-5000/2270*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Arsenic disulfide. *See* Arsenic sulfide, solid									
E •	Arsenic trisulfide (*RQ-5000/2270*)	Poison B	Poison	173.364	173.365	50 pounds	200 pounds	2	2	
E •	Benzoic acid (*RQ-5000/2270*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Benzonitrile (*RQ-1000/454*)	Combustible liquid	None	173.118b	None	No limit	No limit	2	2	
E •	Beryllium chloride (*RQ-5000/2270*)	Poison B	Poison	173.364	173.365	50 pounds	200 pounds	2	2	
E •	Beryllium fluoride (*RQ-5000/2270*)	Poison B	Poison	173.364	173.365	50 pounds	200 pounds	2	2	
E •	Beryllium nitrate (*RQ-5000/2270*)	Oxidizer	Oxidizer	173.153	173.182	25 pounds	100 pounds	2	2	
E •	n-Butyl phthalate (*RQ-100/45.4*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Cadmium acetate (*RQ-100/45.4*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Cadmium bromide (*RQ-100/45.4*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Cadmium chloride (*RQ-100/45.4*)	ORM-E	None	None	173.510	No limit	No limit	1,2	1,2	If stowed under deck, must be stowed in A RECOVERABLE LOCATION)

§172.101 Hazardous Materials Table (cont'd)

(1) */W/A	(2) Hazardous materials descriptions and proper shipping names	(3) Hazard class	(4) Label(s) required (if not excepted)	(5) Packaging (a) Exceptions	(5) Packaging (b) Specific requirements	(6) Maximum net quantity in one package (a) Passenger carrying aircraft or railcar	(6) Maximum net quantity in one package (b) Cargo only aircraft	(7) Water shipments (a) Cargo vessel	(7) Water shipments (b) Passenger vessel	(7) Water shipments (c) Other requirements
E •	Calcium chromate (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Calcium dodecylbenzenesulfonate (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E A •	Calcium hydroxide (*RQ-5000/2270*)	ORM-B	None	None	173.510	50 pounds	100 pounds	2	2	
E A •	Captan (*RQ-10/4.54*)	ORM-A	None	None	173.510	100 pounds	No limit	2	2	
E •	Carbofuran (*RQ-10/4.54*)	Poison B	Poison	173.364	173.365	50 pounds	200 pounds	2	2	
E A •	Chlorpyrifos (*RQ-1/0.454*)	ORM-A	None	None	173.510	100 pounds	No limit	2	2	
E •	Chromic acetate (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Chromic sulfate (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Chromous chloride (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Cobaltous bromide (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Cobaltous formate (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Cobaltous sulfamate (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Coumaphos (*RQ-10/4.54*)	Poison B	Poison	173.364	173.365	50 pounds	200 pounds	2	2	
E •	Cresol (*RQ-1000/454*)	Corrosive material	Corrosive	173.244	173.245	1 gallon	55 gallons	2	2	
E •	Cupric acetate (*RQ-100/45.4*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Cupric nitrate (*RQ-100/45.4*)	Oxidizer	Oxidizer	173.153	173.182	25 pounds	100 pounds	2	2	
E •	Cupric oxalate (*RQ-100/45.4*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Cupric sulfate (*RQ-10/4.54*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Cupric sulfate, ammoniated (*RQ-100/45.4*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Cupric tartrate (*RQ-100/45.4*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E A •	2,4-D esters. *See* 2,4-Dichlorophenoxyacetic acid esters									
E •	Dicamba (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Dichlobenil (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Dichlone (*RQ-1/0.454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	*1,1-Dichloro-2,2-bis (parachlorophenyl) ethane. See* TDE									
E A •	2,4-Dichlorophenoxyacetic acid esters (*RQ-100/45.4*)	ORM-A	None	None	173.510	50 pounds	No limit	2	2	
E •	Dichloropropane. *See* Propylene dichloride									
E •	Dichloropropene (*RQ-5000/2270*)	Flammable liquid	Flammable liquid	173.118	173.119	1 quart	10 gallons	2	2	
E •	2,2-Dichloropropionic acid (*RQ-5000/2270*)	Corrosive material	Corrosive	173.244	173.245	2 gallons	10 gallons	2	2	
E •	Dichlorvos (*RQ-10/4.54*)	Poison B	Poison	173.364	173.365	Forbidden	1 quart	2	2	
E •	Dinitrotoluene (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Diquat (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	

§172.101 Hazardous Materials Table (cont'd)

(1) */W/A	(2) Hazardous materials descriptions and proper shipping names	(3) Hazard class	(4) Label(s) required (if not excepted)	(5) Packaging (a) Exceptions	(5) Packaging (b) Specific requirements	(6) Maximum net quantity in one package (a) Passenger carrying aircraft or railcar	(6) Maximum net quantity in one package (b) Cargo only aircraft	(7) Water shipments (a) Cargo vessel	(7) Water shipments (b) Passenger vessel	(7) Water shipments (c) Other requirements
E *	Disulfoton (*RQ-1/0.454*)	Poison B	Poison	173.364	173.365	Forbidden	1 quart	2	2	
E *	Diuron (*RQ-100/45.4*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E *	Dodecylbenzenesulfonic acid (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E *	EDTA. *See* Ethylenediaminetetraacetic acid									
E *	Endosulfan (*RQ-1/0.454*)	Poison B	Poison	173.364	173.365	1 pound	10 pounds	1,2	1,2	If stowed under deck, must be stowed in A RECOVERABLE LOCATION)
E *	Endrin (*RQ-1/0.454*)	Poison B	Poison	173.364	173.365	50 pounds	200 pounds	1,2	1,2	If stowed under deck, must be stowed in a recoverable location.
E *	Epichlorohydrin (*RQ-1000/454*)	Flammable liquid	Flammable liquid	173.118	173.119	1 quart	10 gallons	2	2	
E *	Ethion (*RQ-10/4.54*)	Poison B	Poison	173.364	173.365	Forbidden	1 quart	2	2	
E *	Ethylenediamine (*RQ-1000/454*)	Flammable liquid	Flammable liquid	173.118	173.119	Forbidden	1 quart	2	2	
E *	Ethylenediaminetetraacetic acid (*RQ-5000/2270*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E *	Ferric ammonium citrate (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E *	Ferric ammonium oxalate (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E *	Ferric fluoride (*RQ-100/45.4*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E *	Ferric nitrate (*RQ-1000/454*)	Oxidizer	Oxidizer	173.153	173.182	25 pounds	100 pounds	2	2	
E *	Ferric sulfate (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E *	Ferrous ammonium sulfate (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E A *	Ferrous chloride, solid (*RQ-100/45.4*)	ORM-B	None	None	173.510	No limit	No limit	2	2	
E *	Ferrous chloride, solution (*RQ-100/45.4*)	Corrosive material	Corrosive	173.244	173.245	1 quart	5 gallons	2	2	
E *	Ferrous sulfate (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E *	Fumaric acid (*RQ-5000/2270*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E *	Guthion (*RQ-1/0.454*)	Poison B	Poison	173.364	173.365	50 pounds	200 pounds	2	2	
E *	Heptachlor (*RQ-1/0.454*)	Poison B	Poison	173.364	173.365	50 pounds	200 pounds	1,2	1,2	If stowed under deck, must be stowed in a recoverable location.
E *	Hexachlorocyclopentadiene (*RQ-1/0.454*)	Corrosive material	Corrosive	173.244	173.245	1 quart	10 gallons	2	2	
E *	Isopropanolamine dodecylbenzenesulfonate (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E *	Kelthane (*RQ-5000/2270*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E *	Kepone (*RQ-1/0.454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E *	Lead acetate (*RQ-5000/2270*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E A *	Lead fluoborate (*RQ-5000/2270*)	ORM-B	None	None	173.510	25 pounds	100 pounds	2	2	
E A *	Lead fluoride (*RQ-1000/454*)	ORM-B	None	None	173.510	25 pounds	100 pounds	2	2	
E *	Lead iodide (*RQ-5000/2270*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E *	Lead stearate (*RQ-5000/2270*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E *	Lead sulfide (*RQ-5000/2270*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E *	Lead thiocyanate (*RQ-5000/2270*)	ORM-E	None	None	173.510	No limit	No limit	2	2	

§172.101 Hazardous Materials Table (cont'd)

(1)	(2)	(3)	(4)	(5) Packaging		(6) Maximum net quantity in one package		(7) Water shipments		
*/ W/ A	Hazardous materials descriptions and proper shipping names	Hazard class	Label(s) required (if not excepted)	(a) Exceptions	(b) Specific requirements	(a) Passenger carrying aircraft or railcar	(b) Cargo only aircraft	(a) Cargo vessel	(b) Passenger vessel	(c) Other requirements
E	Lime, slaked. *See* Calcium hydroxide									
E	Lithium chromate (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
EA	Maleic acid (*RQ-5000/2270*)	ORM-A	None	None	173.510	25 pounds	100 pounds	2	2	Keep tightly closed.
EA	Maleic anhydride (*RQ-5000/2270*)	ORM-A	None	None	173.510	25 pounds	100 pounds	1	1	
E	Mercaptodimethur (*RQ-100/45.4*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E	Mercuric nitrate (*RQ-10/4.54*)	Oxidizer	Oxidizer	173.153	173.182	25 pounds	100 pounds	1,2	1,2	If stowed under deck, must be stowed in a recoverable location.
E	Methoxychlor (*RQ-1/0.454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E	Mevinphos (*RQ-1/0.454*)	Poison B	Poison	173.364	173.365	Forbidden	1 quart	2	2	
E	Mexacarbate (*RQ-1000/454*)	Poison B	Poison	173.364	173.365	50 pounds	200 pounds	2	2	
E	Naled (*RQ-10/4.54*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E	Napthenic acid (*RQ-100/45.4*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E	Nickel ammonium sulfate (*RQ-5000/2270*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E	Nickel chloride (*RQ-5000/2270*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E	Nickel hydroxide (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E	Nickel nitrate (*RQ-5000/2270*)	Oxidizer	Oxidizer	173.153	173.182	25 pounds	100 pounds	2	2	
E	Nickel sulfate (*RQ-5000/2270*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E	Nitrophenol (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E	Nitrotoluene (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
EA	Paraformaldehyde (*RQ-1000/454*)	ORM-A	None	None	173.510	25 pounds	200 pounds	2	2	
E	PCBs. *See* Polychlorinated biphenyls									
E	Pentachlorophenol (*RQ-10/4.54*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E	Polychlorinated biphenyls (*RQ-10/4.54*)	ORM-E	None	None	173.510	No limit	No limit	1,2	1,2	If stowed under deck, must be stowed in A RECOVERABLE LOCATION)
E	Potassium chromate (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E	Propargite (*RQ-10/4.54*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E	Pyrethrins (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E	Quinoline (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E	Resorcinol (*RQ-5000/2270*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E	Selenium oxide (*RQ-1000/454*)	Poison B	Poison	173.364	173.365	50 pounds	200 pounds	2	2	
E	Sodium bifluoride, solid (*RQ-5000/2270*)	Corrosive material	Corrosive	173.244	173.245b	25 pounds	100 pounds	2	2	
E	Sodium bifluoride, solution (*RQ-5000/2270*)	Corrosive material	Corrosive	173.244	173.245	1 quart	5 gallons	2	2	
E	Sodium chromate (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E	Sodium dodecylbenzenesulfonate (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E	Sodium hydrosulfide, solid (*RQ-5000/2270*)	Flammable solid	Flammable solid	173.153	173.154	25 pounds	100 pounds	2	2	

§172.101 Hazardous Materials Table (cont'd)

(1)	(2)	(3)	(4)	(5) Packaging		(6) Maximum net quantity in one package		(7) Water shipments		
*/W/A	Hazardous materials descriptions and proper shipping names	Hazard class	Label(s) required (if not excepted)	(a) Exceptions	(b) Specific requirements	(a) Passenger carrying aircraft or railcar	(b) Cargo only aircraft	(a) Cargo vessel	(b) Passenger vessel	(c) Other requirements
E •	Sodium hydrosulfide, solution (*RQ-5000/2270*)	Corrosive material	Corrosive	173.244	173.245	1 quart	5 gallons	2	2	
E •	*Sodium hypochlorite. See* Hypochlorite solution *or* Hypochlorite solution containing not more than 7% available chlorine									
E •	Sodium phosphate, dibasic (*RQ-5000/2270*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Sodium phosphate, tribasic (*RQ-5000/2270*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Sodium selenite (*RQ-1000/454*)	Poison B	Poison	173.364	173.365	50 pounds	200 pounds	2	2	
E •	Strontium chromate (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E A •	2,4,5-T. *See* 2,4,5-Trichlorophenoxyacetic acid.									
E A •	2,4,5-T amines, esters, *or* salts. *See* 2,4,5-Trichlorophenoxyacetic acid, amines, esters, *or* salts									
E •	TDE (*1,1-dichloro-2,2-bis(para-chlorophenyl) ethane*) (*RQ-110.454*)	ORM-A	None	None	173.510	50 pounds	No limit	2	2	
E •	2,4,5-TP. *See* 2,4,5-Trichlorophenoxypropionic acid									
E •	2,4,5-TP esters. *See* 2,4,5-Trichlorophenoxypropionic acid esters									
E •	Tuxaphene (*RQ-110.454*)	ORM-A	None	None	173.510	25 pounds	100 pounds	2	2	
E •	Trichlorfon (*RQ-1000/454*)	ORM-A	None	None	173.510	25 pounds	100 pounds	2	2	
E •	Trichlorophenol (*RQ-10/4.54*)	ORM-A	None	None	173.510	100 pounds	No limit	2	2	
E A •	2,4,5-Trichlorophenoxyacetic acid (*RQ-100/45.4*)	ORM-A	None	None	173.510	50 pounds	No limit	2	2	
E A •	2,4,5-Trichlorophenoxyacetic acid amines, esters, *or* salts (*RQ-100/45.4*)	ORM-A	None	None	173.510	50 pounds	No limit	2	2	
E A •	2,4,5-Trichlorophenoxypropionic acid (*RQ-100/45.4*)	ORM-A	None	None	173.510	50 pounds	No limit	2	2	
E A •	2,4,5-Trichlorophenoxypropionic acid esters (*RQ-100/45.4*)	ORM-A	None	None	173.510	50 pounds	No limit	2	2	
E •	Triethanolamine dodycylbenzenesulfonate (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Uranyl acetate (*RQ-5000/2270*)	Radioactive material	Radioactive material	173.391	173.395	Not applicable	Not applicable	2	2	
E •	Vanadium pentoxide (*RQ-1000/454*)	Poison B	Poison	173.364	173.365	50 pounds	200 pounds	2	2	
E •	Vanadyl sulfate (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Xylenol (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Zinc acetate (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Zinc ammonium chloride (*RQ-5000/2270*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Zinc borate (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Zinc bromide (*RQ-5000/2270*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Zinc carbonate (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Zinc chloride, solid (*RQ-5000/2270*)	ORM-E	None	None	173.510	No limit	No limit	1,2	1,2	
E •	Zinc fluoride (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E •	Zinc formate (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	

§172.101 Hazardous Materials Table (cont'd)

(1)	(2)	(3)	(4)	(5) Packaging		(6) Maximum net quantity in one package		(7) Water shipments		
*/W/A	Hazardous materials descriptions and proper shipping names	Hazard class	Label(s) required (if not excepted)	(a) Exceptions	(b) Specific requirements	(a) Passenger carrying aircraft or railcar	(b) Cargo only aircraft	(a) Cargo vessel	(b) Passenger vessel	(c) Other requirements
E *	Zinc hydrosulfite (*RQ-1000/454*)	Flammable solid	Flammable solid	173.153	173.154	25 pounds	100 pounds	2	2	
E *	Zinc phenolsulfonate (*RQ-5000/2270*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E *	Zinc phosphide (*RQ-1000/454*)	Flammable solid	Flammable solid and Poison	173.153	173.154	Forbidden	25 pounds	2	2	Keep away from oxidizing agents.
E *	Zinc silicofluoride (*RQ-5000/2270*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E *	Zinc sulfate (*RQ-1000/454*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E *	Zirconium nitrate (*RQ-5000/2270*)	Oxidizer	Oxidizer	173.153	173.154	25 pounds	100 pounds	2	2	
E *	Zirconium potassium fluoride (*RQ-5000/2270*)	ORM-E	None	None	173.510	No limit	No limit	2	2	
E A *	Zirconium sulfate (*RQ-5000/2270*)	ORM-B	None	None	173.510	100 pounds	No limit	2	2	

5. In § 172.200 paragraphs (b)(1), (b)(2) and (b)(3) would be revised to read as follows:

§ 172.200 Applicability.

* * * * *

(b) *Exceptions.* This subpart does not apply to any material that is—

(1) An ORM-A, B or C unless it is offered or intended for transportation by aircraft and is subject to the regulations pertaining to transportation by aircraft as specified in § 172.101 or is a hazardous substance;

(2) An ORM-A, B or C unless it is offered or intended for transportation by vessel and is subject to the regulations pertaining to transportation by vessel as specified in § 172.101 or is a hazardous substance; or

(3) An ORM-D unless it is offered or intended for transportation by aircraft, or is a hazardous substance.

6. In § 172.202 paragraph (a)(4) and the introductory text of paragraph (c) would be revised; paragraph (c)(3) would be added to read as follows:

§ 172.202 Description of hazardous material on shipping papers.

(a) * * *

(4) Except for empty packagings and a hazardous substance, the total quantity (by weight, volume, or as otherwise appropriate) of the hazardous material covered by the description. The total quantity of a hazardous substance covered by the description shall be entered in pounds or kilograms.

* * * * *

(c) Except for a hazardous substance, the total quantity of the material covered by one description must appear before or after, or both before and after, the description required and authorized by this subpart.

* * * * *

(3) The weight of a hazardous substance in pounds or kilograms shall be entered after the description. Any other appropriate quantity designation may be entered before the basic description.

7. In § 172.203 paragraph (j) would be added to read as follows:

§ 172.203 Additional description requirements.

* * * * *

(j) *Hazardous substances.* If the letter "E" appears in column 1 of the Hazardous Materials Table before the proper shipping name in column 2, a letter "E" shall be entered on the shipping paper in parentheses, brackets or a circle immediately in front of the proper shipping name of each hazardous substance. For example: (E) Cresol, Corrosive material, or [E] Adipic acid, ORM-E.

(1) Each hazardous substance identified by the letter "E" in column 1 in § 172.101 that is reclassed as provided by § 172.101(b) shall have on the shipping paper following the proper shipping name, the name of the hazardous substance in parentheses. For example: (E) Flammable liquid, n.o.s. (beryllium chloride).

(2) When a transport vehicle, aircraft, vessel, or fright container is loaded with a reportable quantity of any hazardous substance at one loading location, the shipping paper must bear the following statement in a clear and legible manner:

FEDERAL LAW REQUIRES PROMPT NOTIFICATION TO 800-424-8802 IF THE HAZARDOUS SUBSTANCE(S) DESCRIBED IN THIS DOCUMENT IS DISCHARGED DURING TRANSPORTATION

8. In § 172.316 the introductory text of paragraph (a) and paragraph (c) would be revised; paragraph (a)(7) would be added to read as follows:

§ 172.316 Packagings containing material classed as ORM.

(a) Except as provided in § 173.505 of this subchapter, each package containing a material classed as ORM-A, B, C, D, or E shall be plainly, durably, and legibly marked on at least one side or end with the appropriate ORM designation immediately following or below the proper shipping name of the material. The appropriate ORM designation shall be placed within a rectangle that is approximately ¼-inch (6.3 mm.) larger on each side than the designation. The appropriate designation for each ORM shall be:

* * * * *

(7) ORM-E for an ORM-E.

* * * * *

(c) The marking ORM-A, B, C, D, or E is the certification by the person offering the package for transporation that the material is properly described, classed, packaged, marked and labeled (when appropriate) and in proper condition for transporation according to the applicable regulations of the Department. This form of certification does not preclude the requirement for a certificate on a shipping paper when required by § 172.204.

9. Section 172.324 would be added to read as follows:

§ 172.324 Packagings containing hazardous substances.

The letter "E" within a circle shall be entered immediately before the proper shipping name on each package containing a hazardous substance. This section does not apply to a portable tank, cargo tank or tank car.

10. In § 172.326 paragraph (a) would be revised to read as follows:

§ 172.326 Portable tanks.

(a) A portable tank containing a hazardous material shall be marked with the proper shipping name of the material. This marking must be in lettering two inches (50.8 mm.) or more in height and legibly displayed on two opposing sides. Additionally, when the material is a hazardous substance, the letter "E" in a circle shall be marked before the proper shipping name.

* * * * *

11. In § 172.328 paragraph (b) would be revised to read as follows:

§ 172.328 Cargo tanks.

* * * * *

(b) *Required markings: Hazardous materials other than gases.* When transporting a hazardous material other than a compressed gas in a cargo tank required by Part 173 of this subchapter to be marked with the proper shipping name of the contents, it must be marked as specified in this Part on each end and each side. When a cargo tank is marked with the proper shipping name or name of a material and the material is a hazardous substance, the letter "E" in a circle shall be marked before the proper shipping name or name of the material as required by paragraph (a) of this section.

* * * * *

12. In § 172.330 paragraph (a)(3) would be added to read as follows:

§ 172.330 Tank cars.

(a) * * *

(3) Letter "E" in a circle before the proper shipping name or name of the material, as appropriate, when the material is a hazardous substance.

* * * * *

PART 173—SHIPPERS—GENERAL REQUIREMENTS FOR SHIPMENTS AND PACKAGINGS

13. In § 173.2 paragraph (a)(16) would be added to read as follows:

§ 173.2 Classification of a material having more than one hazard as defined in this Part.

(a) * * *

(16) ORM-E.

* * * * *

14. In § 173.118a paragraphs (a) and (b)(5) would be revised to read as follows:

§ 173.118a Exceptions for combustible liquids.

(a) Unless otherwise stated for a specific material, the regulations in this subchapter do not apply to a material classed as a combustible liquid in a packaging having a rated capacity of 110 gallons or less, except a combustible liquid that is also a hazardous substance as identified by the letter "E" in column 1 of § 172.101 of this subchapter.

(b) * * *

(5) Reporting incidents as prescribed by §§ 171.15, 171.16 and 171.17 of this subchapter.

15. In § 173.500 paragraph (a) introductory text preceding Note 1 would be revised; a paragraph (b) introductory text and paragraph (b)(5) would be added; paragraphs (a) (1), (2), (3) and (4) would be redesignated paragraphs (b) (1), (2), (3) and (4) and new paragraphs (a)(1) and (a)(2) would be added to read as follows:

§ 173.500 Definitions.

(a) An Other Regulated Material (ORM) is a material that may pose an unreasonable risk to health and safety or property when transported in commerce and—

[Note 1 remains unchanged] * * *

(1) It does not meet any of the definitions of the other hazard classes specified in this subchapter; or

(2) It has been reclassed an ORM (specifically or permissively) according to this subchapter.

(b) ORMs are divided into classes as follows:

* * * * *

(5) An ORM-E is a material that is not included in any other hazard class, but is subject to the requirements of this subchapter. Materials in this class include—

(i) Hazardous substances subject to the regulations of the EPA found in 40 CFR Part 117.

16. In § 173.505 the section heading and the introductory text of paragraph (a) would be revised to read as follows:

§ 173.505 Exceptions for Other Regulated Materials (ORMs).

(a) The following ORM materials, unless otherwise provided in § 172.101 of this subchapter, are not subject to the requirements of this subchapter, except §§ 173.6, 173.21 and 173.24 and Subparts C and D of Part 172, when packaged as follows:

* * * * *

17. In § 173.510 paragraph (a)(1) would be revised; paragraph (b) would be added to read as follows:

§ 173.510 General packaging requirements.

(a) * * *

(1) Each material must be offered for transportation and transported in compliance with § 171.2 of this subchapter, Subparts B, C, and D of Part 172 of this subchapter and Subparts A and B of this Part.

* * * * *

(b) Portable tanks, tank cars, cargo tanks, hopper and dump type transport vehicles must be free from leaks and all openings must be securely closed during transportation. Open-top freight containers and transport vehicles are not permitted for bulk shipments.

18. A new Subpart O consisting of § 173.1300 would be added immediately following § 173.1200 to read as follows:

Subpart O—Other Regulated Material; ORM-E

§ 173.1300 Hazardous substances classed as ORM-E.

A hazardous substance classed as an ORM-E may not be offered for transportation unless packaged in accordance with § 173.510.

PART 174—CARRIAGE BY RAIL

19. In § 174.24 paragraph (b) would be revised to read as follows:

§ 174.24 Shipping papers.

* * * * *

(b) This subpart does not apply to a material classed as ORM-A, B, C, or D unless it is a hazardous substance as provided by § 172.101 of this subchapter.

20. § 174.45 would be revised to read as follows:

§ 174.45 Reporting hazardous materials incidents.

When an incident occurs during transportation in which a hazardous material is involved, a report may be required (see §§ 171.15, 171.16 and 171.17 of this subchapter.)

PART 175—CARRIAGE BY AIRCRAFT

21. In § 175.45 paragraph (d) would be added to read as follows:

§ 175.45 Reporting hazardous materials incidents.

* * * * *

(d) Each operator who transports a reportable quantity of a hazardous substance shall comply with the reporting requirements of § 171.17 of this subchapter when a discharge of any amount of a hazardous substance to the environment occurs during transportation.

PART 176—CARRIAGE BY VESSEL

22. In § 176.11 paragraph (e) would be revised to read as follows:

§ 176.11 Exceptions.

* * * * *

(e) Hazardous material classed and shipped as ORM-D is not subject to the requirements of this Part unless it is a hazardous substance as provided by § 172.101 of this subchapter.

23. In § 176.48 paragraph (b) would be revised to read as follows:

§ 176.48 Situation requiring report.

* * * * *

(b) When an incident occurs during transportation in which a hazardous material is involved, a report may be required. (See §§ 171.15, 171.16, and 171.17 of this subchapter.)

* * * * *

PART 177—CARRIAGE BY PUBLIC HIGHWAY

25. § 177.807 would be revised to read as follows:

§ 177.807 Reporting hazardous materials incidents.

When an incident occurs during transportation in which a hazardous material is involved, a report may be required. (See §§ 171.15, 171.16, and 171.17 of this subchapter.)

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53; 49 CFR Part 1, Appendix A; and 49 CFR Part 106, Appendix A, paragraph (a)(4).)

NOTE.—The Materials Transportation Bureau has determined that the proposals in the notice, if implemented, would not result in a major economic impact under the terms of Executive Order 12044 and DOT implementing procedures (43 FR 9583). A regulatory evaluation is available in the public docket.

Issued in Washington, D.C. on February 13, 1979.

ALAN I. ROBERTS,
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